Gleanings in Bee Culture

Established 1873

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December, 1942

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	48-oz. Jars	12	.67	15 lbs

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10-lb. Pails, 50 to carton; Wt., 45 lbs	4.90 per Carton
60-lb. Cans	40c each; six, $2.25

THE A. I. ROOT COMPANY

12 West 21st Street, New York City

The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (First half of November).

CALIFORNIA POINTS

Southern California. Although a little rain has fallen most sections of Southern California are still very dry and some beekeepers are concerned over the prospects for 1943. In some of the mountain sections frosts have been reported which killed off most of the fall bloom. Bees are able to gather considerable pollen, but little nectar is now available. Eucalyptus is beginning to bloom and some bees that are short of stores are being moved into these sections. In general, colony populations are low and feed stores rather light. Demand for honey continues fairly good with the market rather unsettled although prices have advanced slightly since late October. Honey supplies are light in southern California, with the bulk of the remaining stock in the hands of beekeepers who are unwilling to sell at present offers. Sales extracted, per case, ton lots or more, f.o.b. Southern California—White Orange few sales $13.80-15.60, occasional lots high as $16.20; Sage-Buckwheat Light Amber to Extra Light Amber $13.50-14.25; Mixed Flowers. Light Amber to Extra Light Amber $12.60-13.00. Beeswax, no sales reported.

Central California. Light frosts and rain have occurred in many sections of both valley and coastal regions. The honey flow is practically finished for the season, but a little nectar is still available from euculyptus. Bees appear in fairly good condition with ample stores, although most beekeepers report little surplus from fall crop. Honey is fairly well cleaned up in the San Joaquin Valley. In the Bay district offerings of honey have been light. Prices have held about steady, with extracted honey packaged for the retail trade showing a slight advance due to an increased demand. Sales extracted, per lb., ton lots or more delivered Bay cities via truck—Amber to Light Amber Mixed Flowers 9-10½c; delivered interior valley points—Mixed Flowers, Extra Light Amber to Light Amber 10c, Amber to Light Amber 9c cans returned, Dark Amber 8c; Blue Curls, Extra Light Amber 10c; Alfalfa-Cotton, Extra Light Amber 9-9½c, cans returned.

Northern California. Frosts and occasional showers have occurred in most sections of Northern California. The fall honey operations are about completed and bees appear in fairly good condition for winter with generally ample stores. Demand continues good for Star Thistle with prices slightly higher. Sales extracted, per lb., ton lots or more, delivered Bay Cities via truck—White to Extra White Alfalfa-Clover 12c, White cappings 9c; Amber to Light Amber Mixed Flowers 9-10c; Light Amber to White Thistle 10½-12½c; delivered interior valley points—Water White Alfalfa-Clover mostly 11c; Star Thistle, White 11½-12c, Extra Light Amber 10½-12c, mostly 11-11½c, Light Amber 10-11c; Extra Light Amber Manzanita 9½c; Mixed Flowers Light Amber 9-10c, mostly 10c, Amber 9c; Amber to Light Amber Honey-Dew mixed 8¾-10c. Beeswax 40-45c per lb. delivered.

PACIFIC NORTHWEST

West of Cascades. Considerable rain fell during the first half of November, with cooler temperatures and some snow in the higher mountains. Some beekeepers indicate colonies as a whole are in fairly good condition, while others report many colonies low in population and light in stores with considerable feeding necessary. Supplies of local honey are very scarce and practically out of the hands of producers. A few small lots of extracted Mixed Flowers, predominately Fireweed, are changing hands at 14-15c per lb. delivered Portland.

East of Cascades. Temperatures were generally moderate with frosts during the morning but warm during the day. Bees have been able to make few flights and stores are being consumed. In eastern Oregon many colonies went into winter light in both populations and stores, but in eastern Washington most beekeepers report sufficient stores to carry through a normal winter. There are some indications that higher hay prices this year may result in some increase in alfalfa plantings next season which will provide some additional bee pasture. Sales f.o.b. per lb. extracted—Clover Light Amber single 60s 11c, small pails 13½c.

INTERMOUNTAIN REGION

Over most of the Intermountain Region weather has been favorable for completing bee yard preparations for winter. Moisture is generally ample, except on the Western Slope of Colorado and portions of Nevada and Utah, with honey plants apparently in good condition for next season. A considerable portion of the honey crop is now out of the hands of producers and that remaining is largely being held by beekeepers who are unwilling to sell at present price levels. Fewer large lot sales were reported than during the previous period. Sales f.o.b. per lb. extracted Clover-Alfalfa carlots White to Water White 11½-12c, one car 12¾c, some low as 10-10½c, Extra Light Amber 11-11½c, some low as 10c, more sales at the lower levels with cans returned; case to ton lots Extra White 12½-13c, White 11¾-12½c, Extra Light Amber 11-11½; small pails 13¾-14c; Mixed Flowers Light Amber single 60s 10c cans returned. Comb, Nevada Alfalfa-Clover $3.00-3.65 per case delivered San Francisco. Beeswax mostly 42c per lb. f.o.b.

TOO LATE TO CLASSIFY

FOR SALE—100 colonies, 10-frame, with location; 1¾ acres, 18x34 two-story honey house with basement; in Wisconsin's production section at Brillion. Supers and all equipment, including equipment for 200 more colonies. Have permit to sell. H. Meyer, 718 S. Orchard St., Madison, Wis.

IMPORTED HONEY FOR SALE. Write for particulars and samples stating your requirements. A. C. VILLAGRAN (Sales Agent and Broker), 82 Beaver Street, NEW YORK.

WANTED—Man for coming season, some experience preferred. Start early, Good wage with board furnished. Give particulars in first letter. Fred D. Lamkin, Union Springs, New York.

FOR SALE—Modified-Dadant equipment for 100 colonies, mostly new in 1938. Have saved about 1000 pounds of honey in brood combs for spring feed from 1942 season. Guaranteed free of A.F.B. Any reasonable offer considered. S. E. Larson, Sanish, North Dakota.

WANTED—Man to work with bees. Give references and complete details in first letter. Steady work to right man. C. H. Schader, Sunnyside, Wash.

SUMMARY

Sub-normal temperatures prevailed during this period in the far Northwest and considerable portions of the Far west. Otherwise temperatures ranged from normal to considerably above normal. Over most of the country soil moisture has been improved and is considered generally favorable. In the Southeast the dryness is still unrelieved, with rain needed generally over most of the area. In Florida, where October had only a little more than one fourth of normal rainfall, November so far has continued very dry and the situation is becoming critical.

Preparation of bees for winter has been about completed except in the southern portions of the country. However, in some sections where bees have normally been packed or placed in cellars by this time a shortage of labor has delayed these operations and it may be the end of the month before this work is finished. Skilled bee yard and honey house labor is becoming increasingly difficult to find, and we get many reports of anticipated restriction next season to a level of operations which can be handled by the beekeeper and his family. On the other hand, some beekeepers report that they expect to expand operations somewhat and southern package and queen producers' reports of heavy orders of bees and queens for next season bear this out.

Demand for honey continued fairly good in most areas. Buyers are experiencing increasing difficulty in finding large lots. Much of the honey now being held in large lots is in the hands of producers who are unwilling to sell at present price levels or until the marketing picture becomes further clarified.

Ceilings on domestic and imported beeswax were released by the Office of Price Administration to become effective November 13.

Monthly Report of Honey Producers

Early in November we sent the following questions to honey producers: 1. What per cent of the honey produced in your locality has already left the hands of the producers? Given answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots (carloads or less) in your locality during the past month for (a) extracted honey per pound? (b) comb honey, Fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the condition of colonies for winter in your locality compared with normal, considering the number and age of bees and the supply of stores? Give answer in per cent. 7. How does the number of colonies to be wintered in your locality compare with that of last year? Give answer in per cent. 8. What is the present condition of honey plants in your locality as compared with the average? Give answer in per cent. The answers received are tabulated as follows:

Nov. Date Rec.	State. Name.	1. Pct. Sold.	2. Large lots. Ex.	2. Large lots. Comb.	3. To grocers. Ex.	3. To grocers. Comb.	4. To consumers. Ex.	4. To consumers. Comb.	5. Move-ment.	6. Cond. of col.	7. Cond. of win.	8. Pct. hon. plts.
10	S-Ala. (J. C. Dickman)	80			.55	4.80	.65	.25	Fair	100	100	100
16	B. C. (A. W. Finlay)		.15							100	120	100
13	S-Calif. (L. L. Andrews)		.12½				.85	.25	Fair	75	100	50
16	C-Calif. (Davis Bros.)	80	.11½				1.05		Rapid	100	120	100
9	SE-Colo. (Otis E. Adcock)	50	.10½	4.25	.65	4.25	.80	.25	Rapid	100	75	100
9	E-Conn. (Allan Latham)	10			.75	5.00	1.00	.30	Fair	80	100	100
10	S-Fla. (C. C. Cook)		.08		.60		.80		Rapid	100	125	100
12	C-Fla. (Harry Hewitt)	95			.68		.85		Fair	100	100	90
9	SE-Ga. (J. J. Wilder)	95	.10½	.12½*	.70*	.75*	.85*	1.00*	Rapid	100	115	90
11	NC-Ills. (A. L. Kildow)	95	.10½			3.00	.75	.15	Rapid	100	100	125
6	S-Ills. (Carl E. Killion)	100	.11½	4.25		4.50	1.15	.25	Fair	85	100	75
9	NC-Ind. (T. C. Johnson)	50			.70	4.50	.85	.25	Fair	90	100	100
10	NW-Ind. (E. S. Miller)	90			.75	4.50	.90	.25	Fair	90	100	100
9	W-Iowa (E. G. Brown)	90	.12				.90		Fair	100	100	110
12	C-Md. (S. G. Crocker)	90			.75		.85	.25	Fair		80	90
11	S-Mich. (Floyd Markham)	50	.12		.75		1.00	.30	Rapid	100	90	100
9	C-Mich.(E. D. Townsend)	100								90	110	100
11	W-Minn. (B.L.Morehouse)	15	.12½		.78		.95		Rapid	90	100	110
11	S-Minn. (J. F. Garner)	90			.75	3.60	.90	.19	Fair	110	125	100
19	C-Nebr. (J. H. Wagner)	35	.11		.65	4.00	.79	.20	Fair	100	100	90
11	W-Nev. (Geo. G. Schweis)		.10½	4.25			.90	.23	Rapid	100	100	75
16	W-N. M. (C. A. Baltzley)	15	.10		.50	4.25	.74	.25	Fair	100	110	100
9	W-N. Y. (Adams & Myers)				.90		1.00		Good	90	100	100
11	NW-N. Y. (Geo. B. Howe)	90	.12†	4.50	.73	5.50	.93	.28	Rapid	95	120	100
9	C-N. Y. (F. W. Lesser)	80	.13						Rapid	80	110	125
13	NW-N.C.(C.S.Baumgarner)	100							Slow	75	100	100
12	SE-N. C. (W. J. Martin)	90	.09		.85		1.00		Fair	100	105	100
5	C-Ohio (R. D. Hiatt)	90	.12½		.85		1.15	.30	Rapid	90	110	100
9	NC-Okla. (C. F. Stiles)	40			.55		.78	.20	Fair	85	100	100
9	C-Penn. (Harry Beaver)	40			.70	4.30	.80	.22	Rapid	100	95	100
9	SE-Pa. (D. C.Gilham)	20	.12		.80	4.25	1.10	.25	Fair	75	110	100
9	C-Tenn. (J. M.Buchanan)	95					1.00	.35	Fair	90	100	75
9	S-Texas (J. N. Mayes)	85	.07						Rapid	75	90	Poor
13	S-Texas (H. B. Parks)	80			.45		.58		Rapid	100	112	100
10	N-Utah (Wm. Moran)	80	.12		.75		.90		Fair	100	100	90
12	W-Vt (Phillip Crane)	20		4.50	.87	5.00	1.25	.30	Rapid	100	100	85
6	SE-Wisc. (N. E. France)		.11¼		.50		.57		Fair	100	100	100
9	N-Wyo. (Earl C. Reed	80	.12		.75	5.50	.90	.30	Fair	100	90	75

*Chunk honey
†Cans returned

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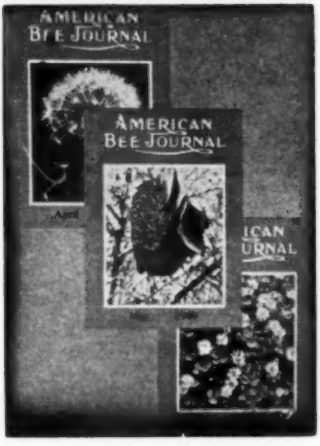

Gleaning's Market Place

The war has called many beekeepers into the service and other beekeepers have offered their services in war plants. This means that there is unused equipment in certain places.

The management of Gleanings in Bee Culture has decided to offer the following service to its yearly subscribers during January, February, March and April. We will list **free** during these four months any bee supplies (not including package bees or honey) that you wish to sell. This listing will be for one month only unless requested to repeat before the 10th of the month. This service will help to secure better distribution of idle bee supplies. All listings will be limited to four different articles and the transaction will be between the owner and the buyer.

Free Service to Regular Subscribers

Mail your list now

Gleanings in Bee Culture, Medina, Ohio

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Illinois, July 25, 1942.

If you have several hundred pounds of slumgum accumulated, send us 100 pounds and let us test it for you. Ship by freight collect. If it contains no beeswax we will charge you nothing for the test. We will pay the freight. If it does contain a fair amount of wax, we will make a reasonable charge and pay for beeswax secured. **You risk nothing.**

Our terms for rendering sent on request.

Dadant & Sons, Hamilton, Illinois

Makers of Famous Foundation
Crimp-wired — Plain — Surplus

Vol. 70
No. 12

Gleanings in Bee Culture

December
1942

Resistant Stock in Advertising

Confusion of the Terms "Resistant" and "Immune"

By James I. Hambleton, and Dr. O. W. Park

[Quite a number of our advertisers are now advertising "Resistant Stock", "Queens Resistant to A.F.B.," and "Queens from Resistant Stock". Complaints have come in, especially from some who construe the word, "resistant" to mean "immune" or incapable of taking foulbrood when exposed. Strange as it may seem, a few of the loudest kickers have the silly notion that if they buy resistant queens they will clean AFB automatically without an act on their part.

To explain: "Resistant" means what the dictionary says, "to hinder, to obstruct, to check" not necessarily to eliminate. "Immune", on the other hand, means "exempt from contagion", that is, that the colony cannot or will not take the disease. Foulbrood inspectors have been annoyed and handicapped repeatedly because beekeepers claim that because they bought queens of resistant stock they therefore need not clean up.

The promoters of resistant stock warned the public in the first place, as Dr. Park explains, that they were not claiming or expecting complete immunity but hoped in time to develop resistance which would enable many colonies to clean up automatically before AFB could get a foothold.

Now then, some of our advertisers with the best of intentions have unwittingly phrased their copy so that it leads their prospective customers to expect too much and then if queens purchased do not show what the advertisement implies, they complain to us. It should be made very plain that daughters of resistant mothers may or may not show resistance. Again, as Mr. Hambleton has pointed out, resistance may be a matter of locality, that is, stock resistant in one locality is non-resistant in another.

We submitted this matter to Mr. James I. Hambleton, Head of the Bee Culture Laboratory of the Bureau of Entomology, and Plant Quarantine, and to Dr. O. W. Park, one of the pioneers in this work at the University of Iowa. We present Mr. Hambleton's letter first:—Ed.]

The cooperating parties on the resistance project chose the word "resistance" rather than "immunity" or some other term simply because it seems to express our objective and perhaps is a safer term to use than "immunity". Its scope is not quite so broad. Further explanation of our results may make this clear.

In the work done on resistance, colonies from various sources representing various blood lines are being fed what we have heretofore considered infective doses of **Bacillus larvae.** These experimental colonies usually respond in one of three ways: (1) the colony becomes hopelessly diseased and has to be destroyed; (2) the disease develops but is later removed by the bees and the colony, to all appearances, recovers; or (3) the colony remains free from disease or at least the disease does not develop to the stage where it can be detected by the naked eye or even by the most careful methods of field inspection.

Those that react according to number (2) are, in our opinion, superior to the usual run of stock in that they demonstrate some control over the disease. Colonies which react according to number (3), of course, are the ones which appear most valuable.

Dr. Alan W. Woodrow of our Laramie laboratory has found that individual larvae even in negative colnies when inoculated are apt to be susceptible to American foulbrood. What happens in these colonies, however, is that the bees detect the diseased larvae before they can be detected by the human eye and remove them while the causative organism is in the vegetative stage, a stage in which the organism is not infective. At this stage the bees can remove the

source of the disease without further spreading it. American foulbrood is only infective in the spore stage. The adult bees, therefore, have the ability to detect the disease at the very earliest stage and keep it cleaned out to such an extent that the disease never develops.

Some of the colonies which are thus able to protect themselves have failed to develop the disease even when having been given enough spores to inoculate 30 or more ordinary colonies. Queens from the best reactors are used for breeding purposes and the process is repeated through subsequent generations each time saving the best queens. While in each test we get a high percentage of daughters which show the same characteristic with respect to resistance as their mothers, the point has not yet been reached where 100 per cent of the daughters show the desired characteristic. We know, therefore, that no one, including the federal or state cooperators working on this project, can guarantee 100 per cent of the daughters of any queen to carry the desirable factors, which translated to practice terms means resistance to disease.

We might, at the end of an experiment, save only 10 queens to breed from the following year. We take for further testing a certain number of daughters from each of these selected queens. The surplus daughters from any rearing are turned over to State agencies for their use. Thus, none of the queens which we distribute, some of which can get into the hands of commercial queen breeders through State agencies, has ever been tested. A commercial queen breeder cannot risk contaminating his bees by testing a queen so acquired and when he, in turn, raises daughters from the experimental queen, it is obvious that he cannot know whether they carry the characteristics of resistance. No one can advertise a queen as being resistant to American foulbrood unless that queen has been individually tested. The best that anyone can do is to advertise queens "reared from experimental resistance stock." To obviate misleading advertising, the conscientious breeder would add that he can not guarantee that any of his queens are resistant.

It has been found in the course of this work that bees react differently to the disease in various parts of the country. Queens in one locality may succumb to the disease more quickly than sister queens in another. It may eventually be possible to classify the various sections of the country as to how a given strain of bees will react to the disease. In certain areas strains showing only a slight degree of resistance may amply cope with the disease, and by the same token, there may be other locations where even the most resistant strains will succumb to the disease. So far as I am aware, there is insufficient evidence to say much about there being a pronounced difference in the severity of disease in a given strain of bees as between seasons or from one year to another.

The tests for resistance which are employed in this cooperative project are much more severe than colonies would be subjected to in ordinary apiary handling. A person would have to be extremely careless and totally ignorant to give bees as heavy an inoculation as we use. We feel, therefore, that in practical use and in the hands of a person who knows foulbrood and is careful not to spread it, most of the strains with which we are working would prove more satisfactory than even our own records indicate.

We have consistently warned those who have received experimental stock to burn the disease on sight, even colonies with mild cases and headed with experimental queens. We do feel, however, that the various strains with which we are working are superior and can be used to help alleviate the losses from American foulbrood by requeening apiaries especially in localities where the disease has been unusually difficult to control. Colonies which develop disease prove their susceptibility and by destroying them, not only is a source of disease eliminated but a colony of bees which shows an inherent tendency to develop the disease is eliminated and prevented from perpetuating itself.

All the queen-rearing work for the project is done under the supervision of Professor H. B. Parks of the Texas Agricultural Experiment Station. Consequently, no queen breeder, so far as the Federal or State agencies are concerned, is favored in the least.

In turning surplus stock over to State agencies, the cooperators essentially lose control of the specific queens and of their progeny. The States, of course, can exercise whatever control they see fit as to how

stock which they turn over to breeders is advertised.

We are heartily in favor of your desire to curb misleading advertising in the journals and I am sure that all the agencies cooperating in the project feel the same way.

—Jas. I. Hambleton.

[We will now hear from Dr. O. W. Park, Iowa State College, Ames, Iowa.—Ed.]

Your mention of the confusion that exists in the minds of many beekeepers in regard to the terms **resistance** and **immunity** strikes a responsive note here with us. Realizing that many would not distinguish between them, we endeavored to point out the difference from the very outset, as may be seen by referring to the fourth paragraph of the first report* published on the disease resistance research here in Iowa. The distinction needs to be emphasized and kept before the beekeeping public until beekeepers in general realize the difference between the two terms.

It is indeed unfortunate that some beekeepers assume their troubles with disease are ended forever as soon as they have introduced queens from a resistant strain. The situation is directly attributable to a lack of full information on the subject. We know well enough that "a little learning is a dangerous thing." The only remedy is full information. We have done what we could to forestall such a situation by using special care never to publish any report on our resistance project, which did not include a specific warning against expecting too much from resistant stock. No matter how good and useful anything may be, it can bring about undesirable results if used improperly or without proper regard for its limitations; and disease-resistant stock is no exception. An intelligently-conducted educational campaign could accomplish great good by informing the beekeeping public in regard to the **use** and **misuse** of resistant stock.

What Resistance Has Accomplished So Far

Intelligent use of resistant stock is steadily reducing losses from American foulbrood in Iowa and elsewhere. As a case in point, Newman I. Lyle, as you know, has operated 500 to 600 colonies for some years with more than average success. During the past five or six years he has continually increased the number of resistant queens used in his yards until now he has resistant stock only. He recently stated that, during this period, his per colony production has increased and his annual losses from American foulbrood have decreased from approximately $500.00 to less than $5.00.

The fact that numerous persons are advertising stock which they claim is resistant to American foulbrood, has been of considerable concern to us. According to our ideas, all such advertisers should be required to produce acceptable evidence to show that said resistance is possessed to a high degree by a high percentage of the queens from said stock, as shown by adequate tests. Unfortunately queen breeders in general do not have a suitable means for securing such evidence. The Iowa Beekeepers' Association, however, is more fortunately situated because all breeding queens used have been officially tested by the Iowa Agricultural Experiment Station and found to be highly resistant to American foulbrood before they are lent to the Association for the purpose of having their offspring made available to the beekeeping public, especially to the beekeepers of Iowa.

—O. W. Park

[The two letters above should clarify the whole matter. Now, let advertisers be careful to explain when, where and how they secured this resistant stock, and then add that they do not guarantee that all queens will show resistance in their bees. The following brief prepared by us will help to clarify further.—Ed.]

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"THE MECHANISM OF COLONY RESISTANCE TO AMERICAN FOULBROOD"

This is the title of an article appearing in the Journal of Economic Entomology 35 (3): 327-330, 1942, reporting work done by A. W. Woodrow and E. C. Holst of the U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine. It reveals some interesting facts in regard to resistance to American foulbrood and how it is accomplished in the honeybee colony. The first part of the paper reviews previous work on the problem done by A. W. Woodrow which furnishes a basis for the present work. He found (see Gleanings in Bee Culture, March 1941, page 148-151,190) "That larvae of resistant colonies are fully as susceptible to

* Amer. Bee Jour. 76 (1):12-14. Jan. 1936

the disease as are those of non-resistant colonies. All larvae are most susceptible in the first day of larval life. Susceptibility decreases thereafter to the extent that larvae inoculated more than 2 days, 5 hours after hatching are immune". Inoculation of larvae from 1 to 2 days of age produced very little infection. We conclude from this that resistance must depend on behavior or "cleaning-out" characteristics of the colony as a whole rather than on larval resistance. Only part of the larvae become infected because, during the time they are susceptible, they are fed only royal jelly and not honey or pollen which may be contaminated. Any infection occurring is purely accidental.

A second paper by the same writer (American Bee Journal, August 1941, pages 363-366) reviewed in the article showed that diseased brood remains are removed by the bees in both susceptible and resistant colonies. "It was found that the time required for removing this material was proportional to the amount of diseased brood present. Cells containing diseased brood later produced healthy brood after they had been cleaned out by the bees. In these experiments, and in others as well, the chances for recovery were closely related to the number of cells of diseased brood found in the colonies. In other words, recovery depended to a considerable degree on the extent of the infection."

Following the above studies, it was found that infection in individual larvae could be caused by adding spores of **Bacillus larvae,** suspended in water, directly to the food surrounding young larvae in the comb soon after hatching by means of a small hypodermic syringe. Spores of AFB were added, not the earlier or rod stage of the organism. The rod stage of the organism was found incapable of causing disease in the larvae. The larvae were then returned to the parent colony so the bees could care for them. Each inoculated larvae was located in the comb when inoculated and examined every day until emergence time to see what would happen to it. Many of these larvae were removed from the comb between inoculation and emergence time by the worker bees because of AFB. Some were removed while in the unsealed stages and some in the sealed stages. For example, about 100 larvae in each of 2 combs from a resistant colony were individually inoculated, and returned to the colony. One of these combs contained no diseased larvae at emergence time. All larvae becoming infected had been removed by the bees. The other comb was enclosed in a wire cloth cage after the brood in it was sealed so the bees could remove no brood in the sealed stage. At emergence time it contained 45 larvae dead of AFB.

In further tests on how resistance is accomplished, larvae in 2 combs from a susceptible colony were inoculated. One comb was then placed in a resistant colony for rearing and the other in a susceptible colony. Neither comb was caged after the brood was sealed. All larvae in the resistant colony developing AFB were removed by the bees while the disease was in the early or rod stage. In the susceptible colony, however, the diseased larvae were removed much more slowly and in many larvae the highly infectious spore stage was reached. In this colony 39 diseased larvae resulting from the inoculations were still present at emergence time. This would constitute a fairly heavy new infection in any colony but the resistant colony was able to overthrow an equal infection.

The final summary reads as follows:— "A new method for the controlled inoculation of individual honeybee larvae with spores of **Bacillus larvae** was used in investigating the mechanism of resistance to American foulbrood. Disease was produced in the brood of resistant colonies as readily as in that from susceptible ones. All diseased brood was removed by the bees of some resistant colonies before ordinary symptoms of the disease were manifest. In a resistant colony no diseased brood remained long enough to permit the disease organisms to reach the spore stage, whereas in a susceptible colony spore formation occurred in numerous infected larvae. **B. larvae** in the rod stage was found to be non-infective. The data show that resistance to American foulbrood in the honeybee colony consists in its ability to detect and remove diseased brood **before** the causative organism, **B. larvae,** reaches the infectious spore stage in the diseased larvae.

From the foregoing we infer that a colony of bees inoculated by robbing or the feeding of contaminated material is resistant if the bees are

(Continued on page 757)

Langstroth on Controlled Mating

By E. F. Phillips

Miss Florence Naile, author of the recently published biography of Rev. Mr. Langstroth, reported to the editor that Langstroth was interested in the control of mating queenbees. The editor asked that I examine Langstroth's Journal to see what he undertook. This has been so interesting a search that the results may as well be shared with others.

Langstroth's Journal is not yet all "translated." His handwriting is rather notoriously poor, in places the ink has faded badly, and sometimes it is not easy to determine when certain items were written, since he mixed up the chronology of the manuscript. Miss Naile spent many hours in making a typewritten copy of a large part of the Journal, which makes references to that part simple, but the story of his efforts to control mating of queens also extends into the uncopied portion. Langstroth did not bother much about punctuation in his Journal, and parts are here copied as he wrote them.

Based on the discovery of Dzierzon that drone eggs are unfertilized, the following speculation is interesting: "(April 5th, 1860) Drone eggs, how to rear Queen from. A friend has a virgin Italian Queen—she lays no eggs yet—he has no other queen—If she lays eggs, he can get a pure queen impregnated thus—When she has produced hatched drones (which will be pure Italian), let him watch her laying (say in an observing hive) remove comb before shell of egg is dry— impregnate artificially— give these eggs to other bees having no queen—let them rear one—She will be pure—then let her be impregnated by her brother drones—and the thing is done—would be one of the most beautiful experiments in the whole range of Natural History—possible —and had I time I could do it."

The following entry refers to artificial insemination and is undated: "Impregn. of Ital Queens. If not done with all the queens, it would be a great gain if we could succeed with those from which we intend to rear our queens to Italianize our apiaries. An assistant will be needed in tying the legs of queens." The next follows directly: "March 1st., 1862. Have one or more drone-laying Italian queens in the fall—to winter in large stocks —these will produce drones in February. Keep up strength of these stocks by brood combs from others. Thus we might rear queens in March—many in April—and have them impregnated before any common drones are found. See pp. 113 and 114 of my book—note—this is a very good plan where we are pestered by common drones." This page reference to his book is not clear, since these pages in all editions of his published book make no reference to this subject, hence the reference seems to be to something else, but not to his Journal.

"March 19th [1862]. In Cleveland to attend Bee Convention. * * * (22) With Dr. J. P. Kirtland concocted a plan for breeding pure Italian bees—and for improving the breed. My object is to get a bee that will readily work in the red clover."

On August 1, 1864, when engaged in rearing progeny from an Italian queen received from the other great bee authority of that day, Dzierzon, Langstroth encountered a severely dry season, so bad that he records that on August 4 there was observed a National Fast Day, "Hear, oh Lord, and save thy people!" On the 5th he writes, "Dry—oh how dry." During this trying period, he reports on August 1 finding a number of beautiful Parsons and Dzierzon queens fertile, after which he writes, "How to select and preserve drones for late Summer and Fall breeding of queens! ! I have been feeding a number of stocks in 13 frame hives to have them breed a second edition of drones. Some of them had and some had not expelled their drones— none of these queens had yet laid any fresh drone eggs. This may be owing to too scanty feeding or to the queens being old. Those which had not yet killed off their drones have not molested them. Drones are killed because forage fails. In seasons and probably in climates where it does not prevail they are preserved. Now to keep them see that it fails not! Feed about half a pint of syrup daily at dark on the portico. Make it rather thin to save trouble in getting water

for the brood. If combs fill up too much, remove and exchange with empty combs of near-by stock. Select for these operations the colonies which contain the handsomest drones. We have hitherto been able to select the handsomest and choicest **mothers** to breed from but have had no control over the fathers. If we shut up our poorly colored drones, then black drones from other apiaries have only a greater opportunity to work us harm. By preserving our choicest drones until the others are killed we are able to select both parents and may hope to make more rapid progress in improving our Italians—if they are susceptible of improvement."

His anxiety to control matings is again indicated in an entry of August 17,1864, the hot weather having moderated, "A number of my strong colonies which have not been fed rearing some drones. Is not the period soon after the destruction of drones and before a second laying has been reared the golden one to get pure queens?"

After receiving a colony of Egyptian bees through T. T. [W.?] Woodbury, Exeter, England, from Fried. W. Vogle of Germany, November 12. 1866, the queen of which was killed in transit, he received three Egyptian and one Italian queen by the steamer Saxonia from Hamburg (?), the Italian queen and one Egyptian queen being dead on arrival, one queen lame and the other all right. Efforts to get pure Egyptian bees and the extreme difficulties of importation, again turned Langstroth's attention to ways of saving pure stock. "Impregnation of queen. Dec. 27, 1866. Received today from my friend Dr. Ehrich Parmely, of New York, an interesting letter on the artificial impregnation of queens—Dec. 24, 1866. I have thought that it might be possible to impregnate the eggs of a drone-laying queen or even fertilize a virgin queen by injecting the sperm of the male through a very small tube such as are used in microscopic injections which are less in diameter than the base of the penis of the drone. Eggs laid immediately after might be impregnated which could be tested within six days. If this could be done it would be a great advance. It has been done with the dogs, so I am inclined to think with the bee it is only a question of skill. If I live I will give this question a fair trial next summer. My present idea of operating is to confine the queen in a slight excavation on a piece of cork and bind her down with strings fastened with pins. This could be done without injury if carefully [?] handled. This letter is very suggestive. Have little faith in any **permanent** impregnation of a virgin queen—should select a fertile drone-laying queen in a colony where all things favorable—giving her comb with workers just hatched and hatching, as in such combs queens lay surest. My mind being now fairly upon this matter success seems more possible. Dr. P. says—'I have thought that a queen might be confined in a room with drones or in a large box with glass at both ends, the queen and drones might come together in flight, but I have more confidence in the first plan,' vis., injection plan. Now I have a plan which appears to me to be more favorable than any yet suggested. Have a room large enough and high enough for bees, queen, and drones to fly very briskly, —glass at one end (possibly tent might answer) have colony full of drones. Keep nuclei with queen to be impregnated here—generally let bees fly at will—drones will get accustomed to it. Put in nuclei with queens desiring to mate—that have been confined for some days—or better, let the nuclei be perfectly accustomed to the place—keep on queen includer until it is desired to have queen meet drones—then shut windows or linen curtain so as to have queen and drones on the wing together. Otis, Cary (See Bee Journal, vol. 1) experiment shows that they will mate near the hive. If a regular course of opening and shutting windows or raising and lowering curtains be practiced, bees and drones will soon become so much accustomed to the obstruction as not to be too greatly disconcerted by it. This plan properly developed seems to me the most feasible of any yet suggested. A large number of nuclei might easily be kept in a suitable room and so disposed at different heights and positions, nuclei boxes of different colors, etc. If a plan of this kind could be made to succeed, how much might be gained."

A mismated Egyptian queen began rearing drones in March, 1867, after stimulative feeding. On April 7, after reporting the ground entirely hidden in snow, he says, "Have now a number of queen cells under way, and shall form nuclei as soon as the

weather softens. About ready to try my plan of artificial impregnation. Hope for success." On April 27 he wrote, "Splendid day—made many nuclei—much honey gathered—bees very strong—drones abundant. Tried injecting semen—tube too small—shall make it larger with rubber bladder adjusted to syringe so as to get more pressure."

On May 13, 1867, he wrote, "Yesterday devised a plan for impregnating queens by injection. Put a rubber bag on a glass tube to get sufficient power. Pull drone to pieces, get his seminal recepticle into fine mouth of tube—open vulva of queen—inject it. Apprehend no trouble except in opening vulva. Will impregnate some eggs of my drone laying Egyptian queen (just dropped—she is now **very** fertile) with Egyptian sperm—have pane of glass over warm water or rather hot water to keep the diluted semen warm— put eggs in cells and give them to colony eager exceedingly to raise queens—impregnate some with semen of Italian—some of black drone. This also if successful **maxima felicitas experiendi.**"

In entries dated in May, probably 1868, we find Langstroth experimenting further in a more definite method of controlled matings. · The early part of the month was not good for nectar, but toward the close he reports the heaviest honey-flow of all his experience. "30 * * *Tied drones and queens with fine silken thread around narrow part of body—they flew well. Cannot small rubber bands be passed around them! held together and allowed to fly with string attached! Feel more confident that artificial impregnation is effected by having drone and queen fly confined together. If Mr. S——[?] got a queen impregnated by tying her leg, etc. shows that string does not prevent. Suppose a band of fine elastic yarn is used? Hope that I am now on the track at last. One band might be used or one for each insect. Could have them all ready—stretch them to get them into narrow place.

"(June 1). Tried today tying queen and drone—could not get them to fly much—suppose tye them and let them fly in a room without a string to confine them?"

Success not yet having crowned his efforts, again in May, 1869, Langstroth wrote as follows: "Let small room have wire cloth windows—meshes too fine for drones. If workers could fly in and out at will—and drones never from the start allowed to fly out—would they not **gyrate** around the room. Know of nothing better and in the room be ready to do their work. If thought best col. as in former plan be allowed to fly out at intervals or be shut up at intervals, too many for fear of their getting too thickly on the wire and disturbing each other—select hatching drone brood from your best drones or pick out the largest and most beautiful young drones not yet able to fly—you have now the control of the drones to breed from. It might not be very difficult to get meshes which would allow workers to fly in and out and not queens. Then the queens might be prevented from their nuclei in the Apiary till say over five days old—about a week best. Then leave part of their colony in a nucleus box set on stand of old one to catch up and retain returning bees (give it what it needs to keep them quiet)—and carry rest in a small box to small room—feed bees and liberate queen. If she does not take flight of her own accord set comb with her on outside of nucleus box. Let original nucleus with drones have no uncaged queen so that if your queen enters it she will not be killed. If knotted on you can by water easily save her. As soon as one fertilized bring another or have several at once, easy to secure them. Instead of small whitewashed room, a **tent** might be used. Experience must decide where best to put windows—how large, etc."

"June (1st) [1869]—Queens in cool bright weather early in Spring late in Fall often fail of getting impregnated. If this plan———, easy by artificial heat to make small room so warm that they will be fertilized—use say small kerosene etc. stove! If artificial heat is used may be not cause them to fly earlier or later than common and be impregnated even without wire screen etc. Amazement! Heat to day 90° and feed at 10 O'C A. M., etc."

This apparently closes the speculations and experiments. No method before or since suggested for controlling mating of queens seems to have escaped Langstroth. Many schemes which he conceived have later been planned by others, with no greater success than he enjoyed. That he failed is no reflection on his skill, and at least he realized what a boon it would be if mating might be planned.

For a Bit of Holiday Cheer

By Mrs. Benj. Nielsen

Keep an over-flowing cooky jar at hand for the holiday season. —Photo courtesy Kellogg Co.

Christmas as usual? Probably not, for many families are separated and over countless others the shadow of impending separation looms nearer and nearer. Certainly there is no peace and too little good will in this war tortured world. Amid the press of our all-out war efforts we should not entirely lose sight of the normal life. I think we should plan for a period, perhaps a day or two, of life as nearly normal as we can make it; a time during which we can relax, refresh weary spirits and gird our strength and determination for the more strenuous days ahead. Surely at this time, which should be the most glorious of all the year, we should plan for such a time, however short it may be. And what, I ask you, can better typify a scrap of normal times than a big cookie jar overflowing with properly aged honey cookies—a little on the fancy side please, some luscious honey candy to nibble on, a plate of old-fashioned honey pop corn balls—the family before the fire, or gathered round the table, perhaps sharing with a friend or two—the troubled world shut out!

Amid the press of defence jobs, Red Cross work, nutrition classes and the hundred and one demands in addition to our regular work necessary to care for our homes and families, it is a joy to realize again that days, even weeks before, we can stir up a batch of honey cookies in a few moments of spare time knowing full well that properly stored those cookies will be superbly flavored when we want them most; that every batch of honey candy, prepared well ahead of time will remain delightfully smooth and fresh; that luscious pop corn balls will assume a mellowed indescribably chewy goodness as they await snugly wrapped in their protective wrapping of waxed paper.

Crisp, crunchy, good-for-you cereals can be combined with energy-giving honey in the twinkling of an eye to produce tempting vitamin, and mineral-laden, health-promoting sweets you will try again and again. With their aid you will not miss too much the nutty, sugar laden confections to which most of us are accustomed and which sugar rationing does not permit. If you have sugar on hand there is no better use for it than in some honey popcorn balls, or velvety honey chocolate fudge. Do try at least one, or all of these toothsome goodies as a part of bringing a bit of normal holiday cheer to your family.

Honey Refrigerator Pinwheels Fruit Filled

One-half cup butter, ½ cup brown sugar, ½ cup honey, 1 egg, 2 cups enriched flour, sifted before measuring, ½ teaspoon salt, ½ teaspoon soda, ¼ teaspoon allspice and ¼ teaspoon nutmeg.

Cream butter until soft, add brown sugar gradually, then the honey and continue creaming until well blended. Stir in well beaten egg. Add dry ingredients sifted together and beat well. Chill the dough thoroughly. Roll out to about one-fourth inch thickness and spread with filling. Roll as for jelly roll. Chill thoroughly. Cut in thin slices. Place on greased cookie sheets and bake in a moderate oven, 350 degrees F.

Honey Fruit Filling

One cup crushed Kellogg's Cornflakes, ½ cup raisins, ½ cup ground walnut meats, ⅓ cup honey, 1 cup peeled and finely chopped apple, 1 tablespoon melted butter, few grains salt and ½ teaspoon cinnamon. Mix well. Drain.

Honey Cookies for Fancy Shapes

One cup shortening, half of which should be butter, 3 cups honey, juice and grated rind of 1 lemon, 1 cup

crushed walnut meats, about 8 cups sifted flour, 1 teaspoon salt, 1 tablespoon soda and 2 tablespoons cinnamon.

Combine shortening and honey and bring to a boil. Remove from fire and add lemon juice, rind and nutmeats. Mix well, then stir into the dry ingredients which have been sifted together. Mix thoroughly, shape into ball and chill over night. Roll out to about one-fourth inch thickness and cut into fancy shapes. Place on greased cookie sheets. Bake in moderate oven, 350 degrees F., about 15 minutes. Frost or decorate as desired.

Honey Peanut Butter Bran Drops

One-half cup shortening, half of which may be butter, ½ cup peanut butter, ½ teaspoon vanilla, 1 cup honey, 1 egg, 1¾ cups sifted flour, ½ teaspoon salt, ½ teaspoon baking powder, 1 teaspoon soda and ½ cup Kellogg's All-Bran.

Cream shortening and peanut butter together, gradually stir in honey and well beaten egg. Add vanilla. Stir in flour, salt, baking powder and soda sifted together. Add All-Bran last. The dough will be very stiff. Shape into small balls about the size of a walnut. Place about 2 inches apart on well greased cookie sheet. Press out with tines of a fork. Bake in slow oven, 325 degrees F., about 12 to 15 minutes.

Honey Popcorn Balls

One-half cup honey, 1½ cups sugar, ⅓ cup water, ½ teaspoon vinegar, ½ teaspoon salt, 2 tablespoons butter, 2 teaspoons vanilla, 2 quarts freshly popped corn, 1 cup salted peanuts and 3 cups Nabisco Shredded Wheat, coarsely crumbled.

Cook honey, sugar, water, vinegar and salt, without stirring, until it becomes brittle when tested in cold water, 270 degrees F. Remove from heat and add butter and vanilla. Place popcorn, peanuts and Nabisco Shredded Wheat crumbs in large buttered bowl. Slowly pour on syrup, mix well, coating every kernel. Shape into balls. Wrap at once in heavy waxed paper.

Crunchy Honey Chocolate Shreddies

One-third cup butter, ¼ pound marshmallows, ¼ teaspoon salt, ½ teaspoon vanilla, 2 squares unsweetened chocolate, melted, 5 tablespoons honey, 2 cups Nabisco Shredded Wheat coarsely crumbled, 1 cup raisins and 1 cup salted peanuts.

Melt butter and marshmallows in double boiler. Add salt, vanilla, chocolate and honey and blend thoroughly. Place Nabisco Shredded Wheat crumbs, peanuts and raisins in a large buttered bowl. Pour on chocolate honey mixture, blending thoroughly. Spread out in buttered, square pan about 1 inch thick. When cool, cut in squares.

Honey Chocolate Burrs

Two squares unsweetened chocolate, melted, 3 tablespoons honey, ½ teaspoon vanilla, a few grains salt, 3 cups Kellogg's Cornflakes.

Combine all ingredients except the cornflakes, blending thoroughly. Then stir in cornflakes. Drop from teaspoon on waxed paper and let harden.

Honey Chocolate Fudge

Two-thirds cup honey, 2 cups sugar, ¾ cup cream, 1 square unsweetened chocolate, ⅛ teaspoon salt, 1 teaspoon vanilla and ½ cup nutmeats, chopped.

Add honey to the sugar, then add cream and grated chocolate. Mix well. Place over low heat and cook slowly, stirring until no grains of sugar can be felt when the finger is run over the back of the spoon. Increase heat and cook until a few drops will form a medium-firm ball when tested in cold water. Remove from fire, add salt and vanilla. Beat until very thick and mixture loses its gloss. This will require about 20 minutes. Add nutmeats just before pouring mixture into buttered pan. When almost cold mark into squares.

Aurora, Nebraska.

Honey popcorn balls, crunchy honey chocolate shreddies, and honey chocolate burrs to aid in bringing a bit of normal Christmas cheer.—Photo courtesy National Biscuit Co.

Beekeeping Along the Seminole Trail

By Chas. H. Huey

We motored down a highway bordered by slash pine and cypress, festooned by grey hanging moss. Before us stretched the road, a shimmering ribbon of sunlight and shadow. By and by we turned onto a sand road; at times we drove under an arch of moss and cypress for half a mile, resembling some kind of fantastic tunnel. Our first stop—Trader's Hill.

Down a sharp incline and before us spread the St. Mary's River. And here was once located Trader's Hill —Fort Alert—a trading post, established about 1755, a garrison maintained to protect settlers from the Seminole Indians, who, dissatisfied with land settlements, sometimes went on the war path. Here the pioneers met with the merchants to exchange their products, hides, furs, etc., for things they needed. The old records disclose that they often traded honey and wax along with other products. On up into the eighteenth century bees were subtantially a part of their living program. No doubt it would be surprising to know how much honey was obtained from the large cypress logs; for the flora even more than today, grew profusely.

They would often rob the "living bee hives"—immense hollow cypresses. The Indians learned the value of wax in sealing their canoes and tents. Sons of the pioneer settlers are still there and today Italian bees hum along the river among the tupelo gums, white holly, and gallberry bushes. Today, the near-by towns buy wax and honey. For some of the best beekeeping territory in the world is along the St. Mary's River. It's origin, like the famous Suwannee, is in the Okefenokee. It winds like a snake, 165 miles to the ocean, almost meeting itself in one place, and in it's saucer-like basin it appears to flow north! The deepest river for it's width on the American continent, it was once navigable to Trader's Hill.

From Fort Alert we went to an apiary near the Canaday homestead at Moniac, Ga. This log blockhouse, 150 years old, is in the midst of good beekeeping territory. Here we find a paradise of native honey plants. In places the river has changed it's course leaving low damp areas highly suitable for honey plants. Deep in the thick undergrowth the beekeeper finds a place for an apiary site, sufficiently high and dry. For winter he leaves plenty of honey, for he can not drive through the high water. Hence the bees must be prepared the preceding fall.

Here a bountiful crop is made by alert beekeepers who follow fall preparation. Despite the great abundance of honey plants, there is some complaint of a dearth of late summer brood-rearing, a handicap to late increase. Whether it is a dearth of pollen they are not sure, but the bee men leave a super of honey for summer increase. That is more than offset by the splendid spring crop.

The Haney house, the Aaron Jernigan house, and Block house are relics of 1858. They are still inhabited and the scenes of near by apiary sites. Beekeepers seem prosperous and happy. Snow-white sand along the river banks, everywhere honey plants! A beekeepers' paradise! The Seminole Trail, once rich in the ways of easy living for the Indians, is still rich for the white men beekeepers. Here the paleface lives with ease—keeps bees, fishes, watches the clouds, like fleecy sail boats in the sky; and his romantic sons and daughters are "lost in a dream of youth."

But we hurry on, across the bridge —the dividing line between the states of Georgia and Florida. In Florida, near the line, the honey plants are not quite so good; but we wind around back into Georgia to Ellicot's Mound, a mound established by commissioner Ellicot as a state line, also to mark the source of the St. Mary's River. We penetrated deep into the jungle. Here the honey plants were plentiful and seemed well distributed for all the year. Lumber and turpentine are important industries but the swampland remains intact as the Seminoles left it many decades ago.

Here all around the Andrew Ellicot Mound the bees are fairly well distributed, the apiaries being several miles apart. Although the beekeepers are alert they underestimate the capacity of the territory, often considering an apiary of thirty or

forty hives the limit for a circular space of eight to ten miles, when, really, in the hands of a skillful beekeeper who meets the spring flow with large colonies and plenty of room, the jungle would support 200 colonies in a single apiary. This opinion is backed by some of the best beekeepers of the region.

The region is a dense jungle. There are ty ty,

No. 1 Dense jungle at Trader's Hill.

white holly, and a holly popularly known as "Christmas holly," tupelo gum, gallberry, poplar, laurel, called Calico weed, maple, willow, snow vine, and many other plants good for honey and pollen.

We are loath to leave the Seminole Trail with its myriad honey plants, friendly people, and beekeeping lore, its winding streams, its historical

No. 2. Old boat landing, Trader's Hill.

background—but after a trip around we say, "Long live the bees and their keepers." And to our Seminole pioneers who followed the trail of Billy Bowlegs and Osceola, their bold chieftains, to the Everglades, we say, "We'd rather stop here—" here by the winding, mysterious stillness of the St. Mary's.

Waycross, Ga.

No. 3. Looking up the St. Mary's River.

Wartime Promotion of Honey

By David I. Day

When sugar rationing was first discussed, a great many Americans became panicky. They visualized the return of old-time corn sugar or having no sugar at all for the morning coffee. A great many honey producers began praying for that once-in-a-blue-moon really bustin' honey crop, seeing a good chance to cash in to take up the slack in the sugar situation.

Generally speaking, this all failed to pan out. Thousands of homes have more honey in use because of the "scare" but thousands without honey have more sugar stored away than they ever had in their lives. Quite a few people saved enough out of the regular ration to take care of fair-sized canning programs this past summer.

Nevertheless, the hue-and-cry of some weeks made people **think** of honey. It even started a few beginning beekeepers. Now, that the subconscious thought has been planted, there is a better chance this winter to promote honey sales than there was last winter. To begin with, there is more money in circulation and with the "honey-thought" turning over in the minds of many, honey sales should be easier. Of course, some beekeepers will not be interested as they have little to sell. The writer was in one Kentucky apiary recently in a community over-blessed with rain. The clover and bluevine flow had fizzled, and he was looking for something from heartsease and wild white aster to tide the bees over what he predicts will be a long cold snowy winter.

Let us, however, consider the case of the **small beekeeper who has a surplus to sell this winter.** Maybe he has ten, twenty, or thirty colonies and anywhere from 600 to 2000 pounds of nature's sweet to dispose of. Naturally, he can sell it in one lot as comb or extracted honey but the profit will not be what he would like. He will have plenty of spare time this winter and would like to use it in disposing of his honey crop at retail prices plus a little extra for delivery. What shall he do to make business livelier?

We all know that many state fairs, great places to advertise the honey idea, were closed down this fall. Many county fairs were closed this summer. There will be virtually no fairs next year. So that is out for the duration. No big beautiful honey displays to thrill the thousands and influence housewives to run to apiaries or to retail food stores in quest of honey. We must adjust ourselves to "no fairs."

The rubber situation is going to affect the honey selling game in many ways. A Tennessee beekeeper has wooden tires on his car but he turned this bad state of affairs to good publicity. Newspapers said he could make 15 miles an hour, so Old Dobbin still couldn't compete. Now, with gasoline rationing, however, he may give the old nag a second look. In general, it means we must use the car less and the mail service more. The postal card plus mimeographing service can be made to reach new thousands with honey suggestions, honey prices. Out of all the difficulties of wartime business, some of the little beekeepers have worked out novel ideas by which they hope to be able still to retail their own crop.

"A church gave a bake sale at a hardware store in our county-seat town—and gave me an idea," declared one small Indiana honey producer late in September. "Fact is, I contributed honey to be sold and my wife helped take care of the business that Saturday last year. Immediately, I went to the hardware man and made a deal. He painted a big 12x14 sign on my roadside barn. I get space each Saturday for a honey table up by his front door. I sold 1430 pounds of honey at premium prices—on Saturdays only. This winter I'll have a corner of his show window for he said my honey ads brought hardware business to him. Many a fellow came to get honey and purchased the needed ax or oil stove before he left."

Said this beekeeper: "Urge small beekeepers to renovate their old roadside signs or have new ones painted. Never in the world would I use a clumsy ugly home-painted sign—nor a small one. I have a big 'HONEY FOR SALE' sign—blue on white—that is 3 by 7 feet in size, painted by a professional sign painter. It's a fine investment. I think it would pay too if one would have

about three colonies of bees in sight, if in bright freshly painted hives. I know a fellow who has the words: **'Hunny for Sail'** painted illiterately on a shingle. He complains that nobody stops. I don't blame the passersby. The sign makes me think of foulbrood, of unsanitary handling, and a lot of things not conducive to a hearty honey appetite."

Several beekeepers who have been successful in getting nice prices locally stress the value of keeping one's name, address, and telephone number before the public. See that all three are on your printed stationery, on your postcard direct-mail stuff, on cards in window displays if you have one in town.

Here are two ideas given the writer by Indiana and Kentucky beekeepers this fall and which we pass on for whatever they may be worth. First, if there is a USO canteen in your locality, see that it gets some of your honey free. It's good patriotism and good advertising. A beekeeper says: "I was in Evansville where the USO has taken over an idle railway station and it is a fine place for the boys in uniform. One boy told me: 'One thing I miss down in our good Louisiana camp is the fine clover honey we used to have in Indiana.' First thing I did when I got home was to mail the lad a nice supply of that very kind of honey."

Another beekeeper said: "I disposed of 1500 pounds of surplus honey last winter in three villages. The school kids took orders for cash commissions. This winter I will pay the commissions in war savings stamps."

"Inaugurate Sweet Saturdays—if you really want to sell your honey locally direct to customers," explained another beekeeper with more than a ton sold every winter that way. "In our county, we have five towns of over 500 and one town of 2500. Every Saturday I spend the day on the main street of one of the towns—two Saturdays straight on the main drag of the bigger town. I advertise 'SWEET SATURDAY' in the two county weekly papers in the 'want ad' column, telling where I will be the next two Saturdays. I'm there, too, with a big canvas sign on my light truck—one word: HONEY—and you can read it a block. I average selling $25 worth or more each Saturday that way—besides what I sell at home and by mail as a result of this type of promotion."

In the matter of retail store distribution, already the effect of the martial tempo is seen. Red, white, and blue color schemes are now used in special honey displays, both in windows and inside the food stores. The weekly honey window has been a feature in some stores since the first talk of sugar rationing. One western food store won notice from the reporters with the use of a colony of bees in a glass hive, the old idea so frequently used at state fairs in the past. There is more space given to honey in the display ads of many city and national chains and in those of single stores, more recipe booklets are being distributed and more encouragement is given to the consideration of honey in the home economics departments of schools and in the programs of home ec clubs throughout the nation.

Richmond, Indiana.

Highlights from Dr. C. L. Farrar's Address at Wisconsin Meeting, October 29-30

1. Other things equal, a large loose-jointed, high-stepping queen has the advantage.

2. There should be no vicious bees in an apiary, for handling them takes too much time.

3. A colony, during one season, may bring in over 100 lbs. of pollen.

4. A strong colony in the height of the season should have the equivalent of six hive bodies. There should be not less than two hive bodies for wintering. Most of the combs should be old combs for in cold weather bees seem reluctant to cover honey in new combs.

5. Two pounds of bees and queen to start a colony, plus a pound of pollen will give better results than three pounds of bees and queen without any pollen.

6. It must be remembered that pollen from a colony affected with AFB is just as dangerous as honey.

7. Several Southern bee shippers are trapping pollen.

8. One spore of AFB introduced to a larva under 24 hours old is almost sure to result in disease. Larvae that escape infection the first two days are not likely to be infected at all.

9. In reference to resistant stock, the parent queen may be resistant and the daughter not resistant.

Wintering Bees

Advantages of Having Double Brood Chamber Well Filled with Honey

By Joe Mills

[This article, which should have appeared earlier, was received just recently. Even though it may not be possible this season to put into practice the points brought out, they can be kept in mind for next season. —Ed.]

Throughout the pages of Gleanings numerous writers have discussed the factors involved in successful outdoor wintering of bees. The virtues and faults of the many types of packing, the position of entrances, condition of colonies, etc., have been widely commented upon. Aside from the mention of the necessity of quality stores, nothing more has been said about this vital essential.

There are beekeepers who check their colonies in the fall and if they find enough there to carry the bees through the winter, pass the matter off until the following spring. They hopefully expect the early flows to keep the bees supplied. In the event of a failure in the materializing of these flows, feeding of sugar syrup is resorted to as a last measure. A more desirable alternative is to have an extra-abundance of stores in the brood chambers at the close of the season.

Let's see now how this abundance of honey will aid in better wintering.

We'll first observe the activity of a normal colony toward the close of the season's brood rearing. As colder weather approaches, the queen gradually reduces her egg laying. The brood nest* slowly decreases in size, dropping lower and drawing closer to the center of the brood chamber.* Meanwhile on the declining honey flow, the workers surround the brood with honey, placing it mainly above and on both sides. Finally brood rearing ceases and the cluster forms in the center surrounded above and on both sides with honey. It is well known that the cluster in this position will be within reach of honey at all times regardless of any way it may tend to move during the winter months. It seems to me this abundance of honey serves another purpose, namely, it will aid in conserving the heat of the cluster.

*[Some beekeepers apparently do not differentiate between a brood nest and a brood chamber. A **brood nest** is that part of the brood chamber occupied by eggs and brood. The term is also used to apply to that part where bees are clustered during the period of quiesence when they have no eggs or brood. A **brood chamber** is that part of the hive in which the brood is reared. Mr. Mills makes these matters clear.—Ed.]

An Experiment

A number of years ago when experimenting with two-story wintering, we divided three yards each into two parts. The colonies in one part were left in one brood chamber while the remaining part was given a second body directly above the lower brood chamber just prior to packing in wooden cases. The combs in the upper chamber ranged from ¼ to ¾ full. In every instance there were stores enough to carry the bees through the winter.

Upon unpacking these yards the following spring, the two-story colonies were decidedly weaker in comparison to the one story colonies. Why were they weaker; certainly not be cause they were wintered in two bodies? Remember the bees were not given the opportunity to arrange their winter quarters in the two bodies in their own instinctive manner. The logical answer seems to be that the upper partly filled body allowed for the rapid radiation of colony heat. Had we permitted the bees the use of two brood chambers long before fall, their strength would have been up to par as following years of successful two-story outdoor wintering has proven.

Caucasian enthusiasts claim their race winter better than the Italian race. Let us see if we can't discover some trait that might explain this difference. The fact that Caucasian colonies stop brood rearing earlier in the fall and begin sooner the following year may or may not contribute to better wintering. Among other contentions, our Caucasian friends further maintain that their bees have the habit of storing more honey in the brood chambers than Italians. There's the answer. Caucasians make more certain there is plenty of honey around their tentative clustering space.

What about management to insure extra abundance of stores in the

(Continued on page 757)

From the Field of Experience

MISMATED QUEENS PREDOMINATE IN EXPERIMENT

By Wayne Keller

Last fall I purchased a Carniolan breeding queen, for I had tried all the other races available in the United States. Results published on the Iowa experiment for testing races of bees aroused my curiosity. It would seem nice to have bees that could stand lower temperatures. Good wintering qualities are necessary even for those who do not winter their bees. Much of the superiority of a strain is in its hardiness irrespective of size and working temperament. There is also color and gentleness to add to the attraction of some. I was pleased to know that my queen had progeny that looked alike and handled well. Also they were the swarming kind.

It was my plan to induce cell building in this colony by the swarming impulse, then divide the colony before it swarmed. By the time the queens were ready to mate there were thousands of Carniolan drones flying from the colony. At a distance of two and a half miles were my thirteen colonies of three-banded Italians, and at a distance of one and one half miles were five golden colonies and eight Caucasians colonies. The Caucasian drones were confined within the colonies behind bars for the duration of the experiment. Drift of Caucasian drones to golden Italian colonies had been negligible.

All sixteen queens mated and laid. Only three of them had progeny the color of the parent colony. The others had varying proportions of Italian-marked and Carniolan-marked bees. Some colonies had many intermediately marked and dark bees with a very few three-banded bees. At least one colony had mostly Italian-marked bees and another mostly Carniolan-marked bees. From these results it is obvious that two and one half miles is too close to have undesirable drones to the queen yard.

According to rules of genetics one would expect only one color type in the hybrid bees, unless the queen was impure. Even then there should be only certain types in simple numerical proportion to each other, unless color depends upon a great number of characters. In the bee with one parent pure, as the drone is reputed to be, the number of types and their numerical ratio is expected to be less. The results I have seen from hybridization indicate either that color depends upon a great number of characters or that there are numerous sperm types within the mated queen. If the multiple character hypothesis is used it indicates a complicated task to determine color genetics of bees. If the hypothesis of numerous sperm types within the mated queen is used, we must assume that one effective mating furnishes these variations or that effective multiple matings take place. For one effective mating to provide numerous sperm types, the drone must carry pairs of genes. This would be possible if he had two sources of genetic make up. However, we believe that drones aren't affected by the mating of their mother. There may be a way in which he can inherit opposite characters of a pair, one of a pair coming from each of his mother's parents, and segregating so that he becomes the progenitor of unlike bees. One of those having typical Carniolan-marked offsprings mated twice as did some with mixed populations. Some of those having mixed populations mated only once. This indicates that multiple mating doesn't explain the mixed population of every colony.

If the Italian drone was not heterozygous, the Carniolan queens most have been so; although Carniolans were dark, they may have been mixed in Italian marking genes not evident until an Italian character made them active.

Lakeside, Nebr.

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LESPEDEZA IN VIRGINIA

By L. A. Hetrick

Assistant Entomologist, Forest Insect Investigations

I was interested in your comments on vetch honey in the September issue of Gleanings. I was surprised at the statement that Lespedeza is not a honey plant. Does this not depend upon the species of Lespedeza?

One tall-growing species of Lespedeza here in eastern Virginia, namely **L. serecia,** blooms profusely in September. Honeybees do visit the blossoms of this plant for the col-

lection of nectar but I cannot say that they store a surplus from this source. Judging from what I have seen in the field, colonies of bees located near extensive plantings of this legume should obtain a surplus.

It is interesting to note that **L. serecia** has not been grown in this country for so very many years. Because of the high content of tannin in the plant it is not a very good forage crop and most of the extensive plantings are for the purpose of seed production. Other smaller plantings have been made for the purposes of erosion control and wild-life protection. Nevertheless, numerous scattered plants of **L.serecia** are common in many areas where I am confident that the seed has never been sown by man. It is coming in fairly extensively on cut-over forest areas, the seeds apparently having been distributed by birds.

West Point, Va.

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APIARY IN ALBERTA KEPT TRIMMED BY GEESE

By A. S. Wurz, Jr.

Five years ago we went into beekeeping very doubtfully with two hives. These were increased to five, then 10, next 20 and now we have 30. In 1941 we found it profitable enough to build an extracting house.

The snap shot of our apiary was taken on June 1st, 1942. Notice that the Boardman jar feeders are still in place, and are kept filled twice a week; also entrances are restricted to ⅜"x1½". This we found speeded up brood-rearing.

The apiary has a windbreak as follows: An eight-foot trimmed maple hedge on the East, also seven-foot board fence on the East, and 25-foot poplars on the North and South. The geese are kept in the yard to trim the grass and they make a neat job. To keep them there, their goslings are placed in a bottomless movable pen, which is moved up and down the rows of hives. They are quite immune to stings. I do not know how practical this idea would be for the big beekeeper, but I can recommend it for the thousands of home apiaries.

Our hives are all placed in three straight rows, one turned South and the other two East. This solved our spring drifting problem.

Rockyford, Alberta.

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IDLE THOUGHTS

By S. H. Burton

Queens on the Window Sill

One cold morning in April there arrived three queen bees through the mails. Wife and I tore off the card board covering from the mailing cages for a brief inspection and then placed them in the window sill while we ate breakfast. With household duties and outside work they were overlooked until several hours later when she heard a distress signal and discovered they were in strong sun-

The geese keep the apiary neat and trim. Their goslings are in the pen in the foreground, and are frequently moved.

light coming through the window. They were immediately removed to a cooler spot in the shade and that evening were introduced in the original mailing cages to colonies that had been queenless 24 hours. In about 36 hours an inspection was made and to my surprise and chagrin all three of the queens were dead as well as the attendants. MORAL—Do not leave your queen bees lying around on a window sill.

[We have had queens in mailing cages die as a result of their having been left with the rays of the sun shining through the wire screen of cages. Always place wire screen down.—Ed.]

Day Dreaming

On lazy August afternoons I like to park myself in the shade near a colony of bees and let their actions capture my imagination. Some bees pause on the threshold before they take off, others on emerging from the hive immediately take wing, while those coming in rush along pell mell into the hive without a moment's hesitation, while still others hesitate before entering as if to make sure they were entering the right habitat. Some appear to be killing time with a backward and forward movement on the entrance board as if polishing their noses to better smooth out the wax within the hive, others performing an air conditioning job by buzzing their wings at the front of the entrance. What goes on inside the hive is still more marvelous. The how and the why of this city of ancient civilization is always challenging our power of observation, deduction, and imagination. Is it a city of pure democracy, communism or totalitarism? One thing we do know, it is never a republic.

Giant Purple Aster

Along the Illinois Central Railroad right of way and State Highway 33 between Palestine and Robinson, Illinois, a stretch of 6 miles, there is a ribbon of rank growing purple aster that is a delight to the eye and a bee paradise. This giant aster grows six feet high with a bush spreading top loaded with large blue purple flowers. It probably belongs to the New England type of aster (**A-Puniceus**) but with a more rank growth and not widely distributed as this is the only place that I have ever seen it growing in Indiana or Illinois. Examination of the root system proves it to be a biennial and I have transplanted some of the root stocks to my own bee pasture.

Queens too Good

Here I go again arguing against the two story brood chamber but my experience with it this season again verifies my conviction that its advantages can be over estimated. At the beginning of the fall honey flow we confined some extra good queens below a queen excluder and placed drawn combs or full sheets of foundation above excluder in full depth hive bodies. During the month of August the bees were only gathering enough nectar for their daily needs and this gave the queen ample egg laying space and they crowded the combs below full of brood from outside to outside. As a result when the fall flow came on the bees had no storage space except in the food chamber above. If the season would last long enough for me to get another hive body or another super full of honey above the second story everything would be jake but as it is I will have to leave this food chamber on for ample stores for their successful wintering with the result that I will have a very strong colony of bees to go into winter with no honey for myself. Had I used only section supers or shallow extracting frames and with a less vigorous queen I might have forced some of this surplus nectar below the excluder and got a little extra for myself. Also when this brood below hatches out late this fall I will have a hive of empty combs below with all the bees, queen and honey in the second story and the result of all this is that I am carrying along a bunch of empty combs below that will do me no good until next year.

[The food chamber should be kept above an excluder the latter part of the season to get it well filled for winter. See editorial page 673 of November, 1942, Gleanings on "Some Advantages of Two-story Wintering". The empty combs that you refer to will be needed later. See p. 726.—Ed.]

Corn Tassel Honey?

Near my outyard in the river bottoms a farmer planted several acres of late sweet corn which came into tassel and silk long after the regular field corn had matured. In fact, it tasseled so late that frost got it before the ears fully matured but my bees gathered some of the most delicious green looking honey from this corn that it has ever been my pleasure to eat. Bluevine and heartsease proved to be a total failure for nectar this season and our surplus is from this corn tassel, goldenrod and acres of white aster. There has been

no fall honey offered for sale in this locality and most colonies of bees will go into winter quarters short on stores which means a heavy loss from starvation. Only the beekeeper who is up on his toes will succeed in securing a small surplus and carrying his colonies through the winter.

Washington, Ind.

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NEW CIRCULAR ON POLLINATION NOW AVAILABLE

By Jas. I. Hambleton
In Charge, Division of Bee Culture

U. S. Department of Agriculture Circular No. 650, "Factors Affecting the Usefulness of Honeybees in Pollination," by Geo. H. Vansell, Division of Bee Culture, Bureau of Entomology and Plant Quarantine, is now ready for distribution.

This publication is issued at a time when unusual interest is being shown in the value of honeybees in pollination. This fact, together with the vital importance of beeswax and honey, will in all likelihood cause the beekeeping industry to emerge after the war in the strongest position it ever had, especially with respect to the popular recognition of the desirability of having bees in abundance in all agricultural regions.

Mr. Vansell's studies are concerned with the behavior of honeybees when visiting blossoms for pollen and nectar. Records were kept of the abundance and kinds of insect visitors and the materials they collected. The sugar concentration of nectar collected both by bees and by hand was ascertained. Many kinds of pollen were identified.

Over two seasons honeybees made up 62 per cent of the observed visitors to pear blossoms. A surprising number (23 per cent) of blow flies were present, but other insects, except for ants, were extremely scarce. Insects which use pollen and nectar to feed not only themselves but their young are likely to be the most effective pollinators.

The circular goes into some detail concerning the structure, position, and secretion of nectar glands. The sugar concentrations of fruit blossoms and many others are recorded. Attention is called to the shape of blossoms and its effect on the rate of evaporation of water and consequently on the sugar concentration of nectar. Alfileria, black locust, and willow nectars averaged 60 per cent or higher in sugar, while pear nectar concentrations ranged from 4 to 30 percent. The sugar concentrations of nectar in nearly 100 plants are given.

The author found that bees show marked preference as to the kinds of plants they visit. The time of blossoming, sugar concentration, and the kinds of blossoms available concurrently result in a state of competition for insect visitation. Bees shift from one plant to another in response to various changes in these factors. No doubt if these factors and their influence on bee visitation were better understood, more practical use could be made of honeybees in increasing seed and fruit production in many of our agricultural crops.

It is pointed out that some types of bee colonies are better pollen distributors than others because of differences in population, the presence of brood that requires pollen for feed, time of introduction into an area, etc. Strong overwintered colonies exceeded weaker colonies of package bees in the numbers of individuals going into the field. In one instance overwintered colonies and 5-pound packages showed respectively 20.4 and 6.4 per cent to be pollen carriers

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SECOND GLANCES

By C. M. Isaacson

Mr. Pettit certainly covers his subject well with his article on the close-of-season-care of extracting equipment (page 649). His advice on getting improvements or repairs done **before** the beginning of the next active season is evident enough—but not always followed. All in all, his comments form a good outline of what the commercial beekeeper should do to close the season off.

"Honeydew" (page 652). Allen Latham has given us another interesting article, as usual. His mention of the prevalence of the honeydew from oak trees holds true in Minnesota also—it is the chief source here. It is also interesting to hear of his opening colonies in mid-winter without resultant ill effects. I have had much the same experience, except that I added honey instead of taking away. His caution as to selling honeydew only for what it is, is well put and should be kept in mind.

I think that we will all agree with E. C. Bessonet that most of our apiaries could be more uniform (page 654)—I know I have never been really satisfied with mine. The factors he mentions as influencing this

lack of evenness certainly have a very marked effect; and to them might be added still another, mistakes, accidental or otherwise, made by the beekeeper himself in operation—through failure to recognize the factors contributing to colony morale. A very powerful colony can fall far behind others in two or three weeks of sulking.

In line with the plea for more wax now (page 656), beekeepers should not only produce every bit possible, but ship it promptly—not hold it for higher prices (useless now, with a ceiling set) or "forget about it". And we should take note of the admonition to ship wax, not useless and weight wasting honey or refuse.

Fruit cake time is here again. Mrs. Neilsen gives a variety of recipes for making them with honey, which is the only way they should be made (page 658). And by Christmas (if you can wait that long before sampling "just a piece") they will taste really **good.**

Because Nosema disease is kept in check by good beekeeping methods, is probably why so little of it is observed in this country. But most of us have likely seen cases of it—perhaps, as the article says (page 660), weakening of colonies has been mistakenly attributed to other causes when Nosema was the real one. We should watch for it.

House apiaries have been tried repeatedly over the years with more or less success. Mr. Murray seems to have had considerable, his crops have consistently been above the average. The protection of the equipment against deterioration would seem to be a worthwhile advantage (page 662).

"The South is a Bonny Land" (page 663). Grant Morse always has a readable way of presenting his comments, as in this article. He confesses to having a bit of envy for the warm winter time climate of the South. Don't we all!

H. H. Root heads his article with an exceedingly apt title "Bricks Without Straw" (page 664). It will be hard to get the increased production demanded, with sharply decreased equipment—but beekeepers will do it if at all possible. Then, too, Nature may take a hand and settle matters with one of those "big years" she bestows upon occasion. This article contains much of importance to beekeepers generally, and a rereading of it will be of value.

Amy Leno i s l o s t! I believe she has contracted "bee fever", and once caught, the disease is usually permanent. Her account of her first bee meeting is certainly interesting.

If we think that "commercial" beekeeping is solely a modern product, we need only glance over the item on page 666, where we read of the Pennsylvania apiarist with nearly 400 colonies. And in 1841! But that was a lot of colonies for two tons of honey.

Yes, upper entrances are here for moist regions (page 672)— and also for those with extreme cold and deep snows. There's a reason.

Mr. McReynolds has had ample experience with wintering bees—experience that he very evidently has taken good advantage of (page 690). But regarding cellar temperatures, my own more limited experience has told me somewhat differently; high readings have meant good wintering (even with several "hot" cellar experiences — and I mean **hot**), but two winters with frosty cellars the bees came through weak, both in numbers and resistance. His article contains a lot that will repay a "second glance".

And to complete a "cover to cover" perusal, turn again to page 704. That answer is correct—the American Honey Institute is the beekeeper's best friend. What will **our** answer be?

Middle River, Minnesota.

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"I'm crossing 'em with lightning bugs so they'll make honey day and night."

Editorials

Due to a considerable amount of honeydew being stored in some regions during this past season it would not be surprising for beekeepers in those regions to have abnormally high winter losses if the weather should be severe, with protracted cold spells.

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Reports from over the country indicate that bees are going into winter quarters rather light in stores. A few beekeepers have extracted too closely. In some regions conditions were not favorable for a fall flow. Early spring feeding will doubtless be necessary in some regions. It will pay to save every colony possible as prospects for 1943 seem promising.

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Formal Ceiling Prices on Honey. No. 275 is being published November 27, and is to be effective December 3. Details are not available as we go to press.

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Drones and dandelions in November are not so uncommon. Last year they were still with us in December. Early in November this year we saw a bee on a dandelion blossom. We noticed quite a number of drones at some hive entrances during recent warm days. Will these "gentlemen of leisure" eventually be pushed out into the cold to perish? Time will tell.

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Coffee Rationing may force us to use one or more substitutes. Miss Kathryn Marcia Montgomery, Dietician, Mt. Sinai Hospital, New York City, recommends a "honey tea" which she says is a "powerful pick-up" for debilitated patients and likewise an excellent remedy for common colds. It consists of a glass of hot water, with honey and lemon juice,—that's all. It is well known that sugars are energy producing, and honey, because it is absorbed so quickly into the blood stream, will produce a quick pick-up that is much safer and not habit forming as is coffee. The writer is fond of a good cup of coffee, but tea and coffee are both narcotics and when we can get a healthful "pick up" by a natural food, like honey, we should give it a fair, honest trial, especially since it is recommended by a dietician from a hospital as well known as Mt. Sinai, known all over the country. In this connection, Mr. Fred Muth, a year or so ago, called attention to the wonderful pick-up from a hot weather drink in which honey was an important factor. Even well people when over tired need something along the line of a natural stimulant, like honey, that will give them a boost.

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Dr. C. A. Kennedy, Professor of Entomology, Ohio State University, on going over Miss Naile's book, "The Life of Langstroth", remarked to Dr. Dunham, that Langstroth had given to the general subject of entomology its "greatest contribution". This statement may surprise the average reader. If one will measure bees, not by honey and wax produced, but by what they do in increasing the amount and quality of fruits and legumes, the statement is not far from the truth. It is fortunate for beekeepers that the powers that be in Washington are measuring bees on pollination. Were it not for this, we perhaps would not be able to get new hives and equipment. Uncle Sam knows, too, that he needs beeswax for munitions. Lucky we are that we stand among the essential industries!

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O.P.A. Issues Ceiling Prices on Beeswax The Office of Price Administration on Nov. 9th issued Maximum Price Regulation No. 264 covering prices on imported vegetable waxes, domestic and imported beeswax. The Order which removes beeswax from under the General Maximum Price Regulation became effective Nov. 13. In general, the prices on domestic beeswax are in line or slightly above with present prices paid beekeepers. A maximum price of 41½c per pound f. o. b. apiary was established for a cash transaction and 43½c per pound f. o. b. apiary for trade. Beeswax may be bought or sold at less than these prices but not for more than prices given in the regulation.

Imported beeswax is priced f. o. b. New York at 37½c per pound for African, 41½c for Central and South American non-sun-bleachable, and 44¾c for Central and South American sun-bleachable.

The original proposal of OPA in

July at a hearing in New York City was to roll back prices of domestic beeswax to 36c and 38c. Members of the industry present at the hearing pointed out that the incentive to increase production would be lost by such action.

In addition to setting up prices for crude beeswax the regulation also establishes prices for U.S.P. refined and sun or chemically bleached beeswax in cakes ranging down to 1 oz. in ton lots or more. Prices range from 52½c for large cakes to 63c per lb. for 1 oz. discs.

Paragraph 1415.60 of the Order entitled "Evasion" reads as follows, and shows the scope of the regulation:

Price limitations set forth in this Maximum Price Regulation No. 264 shall not be evaded whether by direct or indirect methods, in connection with any offer, solicitation, agreement, sale, delivery, purchase or receipt of, or relating to industrial waxes, alone or in conjunction with any other commodity or by way of commission, service, transportation, or other charge, or discount, premium or other privilege or other trade understanding or otherwise.

The Order requires that a record be kept of all sales or purchases of beeswax. The records should show the date, the name and address of the buyer and seller, and the price contracted for or received and the quantity of each type and grade of such waxes purchased or sold. Provision for enforcement is provided by the Order through Civil Enforcement Action and Criminal Penalties, license suspension proceedings, and suits for treble damages under the Emergency Price Control Act of 1942. Persons who have any evidence of any violation of this Order are asked to communicate with the nearest district field, state, or regional offices of the Office of Price Administration.

The advance press release with those paragraphs deleted covering other waxes than beeswax is reprinted below. Copies of the complete order may be obtained by addressing the Office of Price Administration, Washington, D. C.

OFFICE OF WAR INFORMATION
OFFICE OF PRICE ADMINISTRATION
Advance Release: OPA—1086
For Monday Morning Papers,
November 9, 1942.

Rolling back prices for industrial waxes, the Office of Price Administration has set specific dollars-and-cents ceilings for imported vegetable waxes, produced mainly in Brazil and northern Mexico, and for domestic and imported beeswax.

To a substantial extent the new ceilings offset price increases of the past two years and hold quotations for most of the important types sold in the United States at levels prevailing in October 1941. Hitherto, ceilings were established by the General Maximum Price Regulation at levels of last March. March prices, however, reflected increases of from 60 to more than 100 percent since the fall of 1939.

Ceilings on domestic beeswax are set somewhat above the December 15, 1941, level. These prices, OPA said, will tend to encourage production without having an inflationary effect on retail prices and are in line with comparable imported beeswax prices.

On domestic crude beeswax the regulation establishes a maximum cash price of 41.5 cents per pound, f. o. b. apiary. When the product is sold on a "trade price" basis—that is, is traded by the beekeepers to the beekeeper's supply house for equipment—the price may not exceed 43.5 cents per pound.

The new prices, effective November 13, are contained in Maximum Price Regulation No. 264 (Industrial Waxes). They apply to importers, shippers and all other sellers.

The war economy has resulted in a substantial demand for industrial waxes, many which were used in normal times for the manufacture of cosmetics, phonograph records and floor polish. The waxes are now being needed for coated artillery shells, impregnated gas masks, protected airplane fabrics, and ski-polish for ski-troops.

This increased demand, however, has coincided with a shortage of cargo ships to transport the imported waxes from Latin America as well as inability of the countries where the imported waxes originate to increase production due to lack of sufficient labor and transportation facilities.

The new regulation, which establishes a stable price structure for imported industrial waxes and permits importers to realize margins about equivalent to those realized between 1936 and 1939, should aid in maintaining imports in the largest possible volume. In addition, it is designed to encourage the production of domestic beeswax, which may be used at times as a substitute for the imported waxes. On imported waxes, the ceilings apply to shipments which entered the country since August 20, 1942.

Specific prices are also provided by the regulation for crude imported beeswax, these prices ranging from 37.50 cents per pound for African (either sun-bleachable or non-sun-bleachable) to 44.75 cents per pound for Central and South American (sun-bleachable) prices on an f. o. b. New York basis. Central and South American (non-sun-bleachable) crude imported beeswax are stabilized at a level of 41.50 cents per pound, also f. o. b. New York.

As regards other grades of beeswax, the price regulation covers standard grades of yellow refined beeswax U. S. P. standard and sun or chemically bleached beeswax U. S. P. standard. The prices established for these products are, like those for most vegetable waxes, about equal to the October 1, 1941, level, a figure of 52.50 cents per pound in slabs, f. o. b. New York, being named, for example, for the yellow refined type in shipments of one ton or more. The sun or chemically bleached beeswax prices are at a proportionate level, a maximum price of 57.00 cents per pound being set for shipment of this type in slabs. As is the case with imported industrial waxes, customary differentials are provided for other grades. In addition, certain specific additions may be made to the maximum prices for both the vegetable waxes and beeswaxes for shipments in quantities of less than one ton, the basic quantity used in the price tables.

The Vitality of AFB Spores In a recent letter Jas. I. Hambleton, chief of the Bee Culture Laboratory at Washington, D. C., and in various parts of the country, referring to the difficulty of killing the spores to AFB writes:

We have recently found, that the spores of AFB can be boiled for as much as five hours and in many cases retain their vitality. We also have learned that the organism can lie hidden for years in an apparently healthy colony.

This only goes to show that the burning treatment is the only sure way to make a clean-up. The shaking treatment is now obsolete and dangerous on account of recurrence.

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Our Country Needs More Honeybees While beekeeping is an important branch of agriculture it may be a little difficult for the average person, including some beekeepers, to understand how and where honeybees fit into our agricultural program.

Our U. S. A. (not including possessions), with its 3,022,387 square miles of territory has, according to a recent government report, an estimated 4,993,000 colonies of bees (which does not include thousands of swarms in trees and buildings). This would approximate one hive of bees for each 387 acres. Even granting that large areas of our country are unsuited to beekeeping, it is obvious that the present honeybee population could be tripled or quadrupled without danger of overstocking.

We need more bees to produce more honey and to save some of the millions of pounds of nectar that go to waste annually. The sugar shortage has increased the demand for honey.

More bees are needed to produce more beeswax which has no substitute and is in great demand at present for civilian and war work.

But the greatest need for more bees is in the pollination of fruits, legumes, and other farm crops. Bees are said to earn 15 to 20 times more for the farmers in fruit and seed production than they do for beekeepers in honey and wax production.

Our government is now urging greater production of agricultural products including meat of all kinds, butter, cheese, milk, fruit, and vegetables. To produce dairy products cows must have a well balanced ration including legumes. To propagate legumes it is necessary to have bees to pollinate blossoms. Tests in 1941 showed that clover without bees gave ½ bushel of seed per acre while clover with bees gave 8 bushels per acre, a 16 to 1 difference.

As brought out editorially, page 605, October, 1942, Gleanings, **bees actually help to beat the Axis.** Bees make possible legume seed production, enabling each farm to produce its own nitrate fertilizers through the growth of legume plants. Thus, nitrates that are ordinarily used in commercial fertilizers for soil rejuvenation, but which are now difficult to obtain, are being saved for needed munitions.

Yes, we need more bees to produce more honey and wax, also to make possible a larger production of food for our people and the starving millions in war-torn countries, and last, but not least, to help produce bombs with which to end tyranny throughout the world.

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Package Bees and Queen Breeders Essential to Our Industry Years ago, prior to the time queens and package bees were shipped from south to north, it was practically impossible for northern beekeepers to save weak or queenless colonies early in the season. The majority of weak colonies died. Colonies that were hopelessly queenless, even though they were given combs of brood from which the bees could produce queens, usually dwindled in strength and were practically valueless for honey production the same season.

The queen and bee breeders of the South are rendering a valuable and indispensable service to our industry. During a single season recently there were 238,356 queen bees produced and shipped, also 262,023 pounds of bees shipped in packages, not to mention bees on combs in nuclei boxes.

Packages with queens secured from the South early in the season, in time to be developed into populous colonies ready to take full advantage of the major honey flow will yield profitable returns on the investment the same season.

We understand that it will be possible for package and queen shippers to secure the needed material for shipping cages the coming season. It is hoped that sufficient help may be obtained by shippers to continue rendering the service that is so essential at this time.

From North, East, West and South

NORTHERN CALIFORNIA, Nov. 5

Weather: No one could wish for finer weather than we have in October and this past month has been no exception. Here in the eucalyptus region an occasional tree is breaking into bloom. When this occurs there is great excitement in the bee yard. Especially is this true if the weather is warm and dry. We cannot say our rainy season has yet commenced though we have had two or three light showers. So when we see great excitement in front of a hive we know a nectar flow has been discovered and soon the entire yard will settle down to steady work and the result will be a slight show of increase, but it is too much to count on a surplus at this time in the season. But we can know that we will not have to feed sugar in the spring and that is a pleasing thought for the average beekeeper. Bees are going into winter quarters in good condition.

Honey Market: There has been a more or less steady demand for honey in quantities of five pounds or more. From now on the prospect is for a more active market.

Beeswax: The beekeeping industry will be gi en the opportunity on a national scale of taking an immediate and active part in the war effort. Briefly, the situation is this: We have been advised that there will be a shortage of at least 2,000,000 pounds of beeswax urgently needed in war work. The industry was asked to produce as much wax as possible this past season. Due to unfavorable weather conditions the honey crop throughout the country was at least 13% below normal. Production would have been considerably less if the industry had not made a determined effort to increase the number of colonies desired in line with the Increased Food Production Program. A short honey crop means **less beeswax.** Consequently, the shortage of beeswax may be even greater than previously anticipated. Importations of beeswax may be greatly reduced so beekeepers of this country must take the offensive and win the battle in providing this essential war material by **producing it this winter.**

Here is one plan by which it can be done. Dr. J. E. Eckert, of the University of California, suggested this plan for the beekeepers of California, and they are doing it. He says sort over your extracting combs and cull out at least 20%. Melt out the combs leaving the wires intact. (We must conserve all tinned wire.) If you have a wax press, render the combs, dry the slumgum or residue after having extracted what wax you can, and send it with the beeswax to your nearest wax-rendering plant. If you haven't a wax press, melt the combs in boiling water. The wax will rise to the top where it will harden on cooling. Lift the solid cake off the water, and send it to the nearest beeswax plant for further rendering. If you have a quantity of combs, and no wax press, dip the liquid wax off the top of the water during the melting process and let solidify in another container. The material that remains will contain considerable wax, so should be dried and sent with the wax for further refinement. **Do not ship combs or slumgum containing honey.**

The beeswax is needed **now**. Can we wait till next year? Will the Huns or Japs wait?—Cary W. Hartman, Oakland, Calif.

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SOUTHERN CALIFORNIA, Nov. 2.

Weather: Today finds Southern California enjoying ideal weather. About one-half inch of rain has fallen over Southern California since our last letter. Not enough to make much showing toward a honey crop but enough to lay the dust and sprout many of the grass and flower seeds.

Honey Crop: The '42 crop is in cans and most of it has left the hands of the producer. Prices are firm at around 12c for white. Beeswax is in good demand at prices up to 45c for bright yellow.

Miscellaneous: Shortage of laborers is heard on every hand. Wages are the highest ever and workers independent and indifferent. Farmers are hard pressed to get their crops

harvested. Teachers and pupils from the public schools take time from their classes in the afternoon to help with the gathering of fruit, vegetables, and farm crops. Beekeepers are using every short cut they know of to be ready for next year's crop and to carry on with the least amount of hired labor.

Three systems of caring for the surplus combs are practiced by the beekeepers of Southern California during the fall and winter months. One is to place two or more supers on each strong colony directly after extracting and let the bees care for the combs until spring. Another is to place the supers of combs, directly after extracting, in a tight room where they can be fumigated. Two fumigations will usually be enough to protect them from the moth until needed in the spring. The third is to place three or four supers of combs directly after extracting on strong colonies and leave them there until the cool nights come about the first of November and then bring them to the central plant and clean off all propolis and surplus wax and store outside on bottom boards with a cover that will keep out water. Stacks of about eight supers high are about right. We have used the latter method for many years with practically no loss from moth and none at all from vandals.

Since beginning to type these notes we have had the pleasure of a call from the representative of one of the large concerns interested in honey and beeswax. Seems that there has been a meeting of interested parties and it is the opinion of some that we can expect a ceiling on the price of white honey to the producer of from 12 to 12½ cents. Come what may, the thing that interests us most is the getting of a crop in 1943.

Considerable feeding of bees has already taken place in Southern California. Many beekeepers held to the hope that there would be enough nectar coming in during the late summer and early fall to give sufficient stores for winter. In this they were in many cases sorely disappointed. The only recourse in those cases is to feed or have a lot of empty hives in the spring, which do not produce any honey.

In looking over a copy of Gleanings for October, 1931, we find in our notes, "Mr. Krebs, the newly appointed state inspector of apiaries". It was the time we changed from the County inspector system to one having a State governing body. That it has proven a step forward few will deny. Mr. Krebs is still with us and time has proven the wisdom of those who selected him. Another note, "When to feed, how much to feed, and how to feed are questions many beekeepers are asking themselves these days". And so history repeats itself.—L. L. Andrews, Corona, Calif.

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TEXAS, November 2.

Weather: October was almost ideal for bees in Texas. Copious rains fell three separate times, divided almost equally, during the month. These rains are reported as being general over most of beekeeping Texas. The result is that many plants have been in bloom throughout the period and the scales show that the bees during the first two-thirds of the month while rearing fall brood had little loss of stores indicating that they were getting a living from the field. The last third of the month from white brush and numerous composite averages reported from many parts of the State indicate that the bees stored about six pounds of extra surplus. Reports from the hill country show that the evergreen sumac gave the bees quite an amount of honey throughout that district. A number of beekeepers had moved bees to the hills to take advantage of this regular flow to insure winter feed.

Conditions: Migratory beekeepers do not seem to be as numerous this fall as usual and those interviewed were mostly new in migratory beekeeping. At a recent meeting where a Honey Week program was given before a Woman's Club, without exception all present were highly interested in honey. Their reports are very interesting to beekeepers as they report that honey is on sale at but a few stores and the supply is very limited. This demand for honey has been very advantageous to some of the beekeepers who live in districts where dark colored and highly-flavored honey is produced.

Miscellaneous: The prospects for a crop next spring are good. For the first time in many years there is what the farmers call a season in the soil. All native plants have made a

heavy vegetative growth this summer and fall and already biennials such as horsemint are commencing to show. Barring the unforeseen, a crop of some kind of honey will be harvested next spring. The long-time beekeepers are at work getting everything ready to harvest this crop. All bee fixtures are being put into use and in 1943 the beekeepers will contribute their share to the world's supply of food and war supply of wax.—H. B. Parks, San Antonio, Texas.

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MONTANA, Nov. 3.

Weather: Most of July and August was warm with a reasonable amount of moisture. The latter part of August and early September was very dry with some smoke from forest fires.

During late fall we had nice warm days and some rain. This last week we have had heavy rains and plenty of snow in the hills. In some places there is two feet of snow in the mountains, in other places the snow melted as it fell. We have had only a few heavy frosts but it looks like a hard long winter ahead.

Honey Market: The market started off with a bang and the demand far exceeded anything I have ever seen. Many people have come to see about honey. There has hardly been any time to work because of the number of orders to fill. About all one could do was to say "sorry" and send them on their way.

Most of the wax in these parts has been sold at last year's prices. A few have their wax and they have many prospective buyers. It is a question of whether to sell all the wax or to save some for foundation. There will be plenty of it used if we can get wire and frames.

Miscellaneous: Bees flew late this fall and had some late sweet clover bloom, sage, and goldenrod. Most of the colonies built up with plenty of honey for winter. There was no honey stored in supers after August 20. Feeding is finished. Most beekeepers got all the sugar they could use. A few producers used honey for winter food. Most of the hives have very nice clusters to begin winter.

The last car of honey here is being held for 12 cents and folks are coming in by air to look it over. I expect a very short supply in spring. Some stores are marketing honey in five-pound pails for $1.00.—Parson Pile, Corvallis, Montana.

NEBRASKA, Nov. 4

Weather: The season, though somewhat late started out with a bang. Prospects were exceptionally bright. An enormous crop was confidently expected. Cool, cloudy, rainy weather, however, curtailed the activities of the bees, so that only a fair crop was brought in.

Honey Crop: The crop harvested was about normal for this section. Quality is excellent; mostly white to light amber. The fall flow which produces our darker, stronger flavored honey was very light. Smartweed or heartsease bloom was exceptionally heavy this fall, but somehow the flow dribbled out so that little honey was harvested from this usually reliable source.

Condition of Bees: Most bees are going into winter in good condition with ample stores. In most localities, however, some feeding was done to insure successful wintering. In most cases, those colonies found light were Italian bees which are prone to continue storing in the supers long after the Caucasians have crowded their brood chambers with honey.

Prospects: Nebraska has been getting her old-time rains. Consequently prospects for a good crop next year are bright. Conditions for starting clover have been very favorable this fall. The increased moisture has tended to hold back the grasshopper menace and possibly, we hope, eliminated it for the future.

Market: Movement of honey is brisk with good prices.

Beeswax: Beeswax is in good demand with excellent prices. Beekeepers are salvaging all that is possible, shaving combs deeply when extracting and scraping all top bars.

Miscellaneous: People are buying honey to supplement their ration of sugar, and are very pleased to have tested recipes for cookery uses. We beekeepers now have a golden opportunity to secure lots of new customers, and if we make the effort to see that they learn to use honey with satisfactory results, we shall, no doubt, find that many of these new customers will become permanent ones when prices return to normal and there no longer remains any need for sugar rationing.—Benj. Nielsen, Aurora, Nebr.

MINNESOTA, Nov. 10

Weather: After an unusually cool, wet summer, Minnesota had one of the driest falls on record. Much of this dry weather was warm enough to have brought on a honey flow, but unfortunately the early killing frost had made that impossible. While the dry period was an extended one the fact that it came so late in the season kept it from being harmful. The shorter days and cool weather and condition of the vegetation meant that there was very little evaporation compared with what there would be in mid-summer. While the top few inches of the soil is dry, the general soil moisture condition for the state as a whole is good. Northeastern Minnesota has already had considerable snow, one locality reporting 22 inches.

Honey Crop: .Except for a few scattered territories, most places in the state report a crop much below normal. The surplus flow ended very early and after that the strong colonies consumed so much in brood-rearing that when the beekeeper made the last round of his yards for extracting he was surprised how little was left to be taken. Many colonies had used so much that they had to be fed to give them sufficient stores for winter. Consequently later reports give increasingly lowering estimates for the total honey crop.

Condition of Bees: Brood-rearing was carried on fairly late in the season so the condition of the colonies with respect to number of young bees is generally good. Because of the late brood-rearing and the consequent depletion of stores there is danger of a considerable amount of loss due to starvation, unless the winter should be favorable.

Market: Honey is moving well and the demand continues good. While the biggest factor in the increased demand is the rationing of sugar, yet there is evidence that many new users are influenced also by a knowledge of the food value of honey, and by the favorable publicity given honey by the American Honey Institute and other agencies. It is gratifying to note the number of times the word "honey" now occurs in the food columns of leading newspapers and magazines.

Miscellaneous: Because of tin and gas rationing and other factors affecting travel, the Minnesota Beekeepers' Association will not hold its annual convention with the usual program and banquet. They will hold a business meeting at the Curtis Hotel in Minneapolis at 11:00 a. m. Tuesday, November 8.—M. C. Tanquary, St. Paul, Minn.

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OHIO, Nov. 5

Weather: I believe that the least said about the weather in Ohio the better the beekeepers will feel. During the entire summer and fall we have had unfavorable weather for the bees to do their duty. This, of course, resulted in a near crop failure over the entire state. It is rather doubtful if the crop over the entire state will average 40%.

Condition of the Bees: September and October have proven to be excellent brood-rearing months and it was still in evidence as late as November 2. The hope of a fall flow sufficient for winter stores was completely blasted in most of the state. Fall aster and goldenrod was in abundance all over the state but the weather again was the due cause of little or no nectar flow. With colonies exceptionally strong feeding has been prevalent over the state. More general feeding has been done this fall than for many, many years. However, we are all optimistic enough to be looking forward to a fine crop in 1943.

Miscellaneous: I believe it is true that the beekeepers have not made much more than their expenses this year. If they do not keep books I wonder how they will know.

Food will win this war and we as beekeepers must continue to do our part to a much greater extent in the future than we have in the past. All of us, individually and collectively are dependent upon our soil. Top soil contains the fertility which grows our crops, furnishes food for our Army, Navy and Marines, our Civilian Defense workers, our children, and all others. In addition to this it furnishes much of the raw material for our clothing. In a short time much of this would come to a sad ending if the beekeepers were to step out of the picture.

The following figures have and will in the years to follow deal a very severe blow to beekeepers unless some action is taken to correct a portion of it.

Acreage yield increase in 1942: Wheat, 8%; corn, 12%; tomatoes, 27%; sugar beets, 45%; soybeans, 86%. All clover seed produced in Ohio in 1941 amounted to 214,000 bushels. In 1942, the production was only 144,000 bushels. There was a decrease in acreage of 19% and a decrease in yield of 12%.

In closing I would suggest that for the good of the Nation each beekeeper have a heart-to-heart talk with all farmers adjoining or near to his bee yards and see what he can do to increase the clover seed yield for 1943. You will be helping the whole world, the farmer, and yourself. I think that the A.A.A. will allow each farmer a given sum per acre for the seeding of clovers. Better verify this with your county agent. No more commercial nitrate for the duration. The farmer must produce his own by means of clover. If the farmer does not produce the seed—then what? The health of the Nation depends upon the soil. The beekeepers and the bees will do their full part.—W. A. Coulter, Columbus, Ohio.

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VIRGINIA, Nov. 6

Weather: The past two months have been filled with changes, and I might say, disappointments. At times we had much rain and then cool weather. Those colonies which were not well supplied with pollen and honey died, or were so weakened that they had to be united with other colonies. I saw combs in colonies which had just died, completely covered with mold. This kind of weather plays havoc with our honey crop but has certainly made clover look good. The beekeepers can only look forward now to a better season in 1943.

Condition of Bees: Bees operated by commercial beekeepers are in most cases in good shape for winter. Considerable feeding has been done, or where there was enough good honey, it had to be moved where the bees could get to it in the coldest part of the winter. The reason for this is that so much of the honey gathered this year was honeydew which in most cases had granulated. Most commercial beekeepers have taken care of this. On the other hand, small beekeepers have not seen to it as they should have, thinking because the hives were heavy they were all right for winter. Many of these colonies will die or be so weak in the spring that they will not be worth much.

Crop Conditions: As mentioned above, clover is looking exceptionally well. With this in mind, and considering the fact that tulip poplar and sourwood did not produce well this year, beekeepers are looking for a good crop in 1943.

The honey market here in Virginia is good. The main trouble is that beekeepers do not have the honey to meet the demand. I believe 80% of this year's honey is out of the beekeepers' hands.

Miscellaneous: The increase in number of colonies this year is about 10%. This increase is mostly among established beekeepers. There is some increase in the number of beekeepers but not so much as was expected. There is a desire on the part of many beekeepers to increase their number of colonies next year.—H. W. Weatherford, Vernon Hill, Va.

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PENNSYLVANIA, Nov. 10

Honey Crop: Final tabulations show a very short crop of honey for Pennsylvania. Even the fall flow was cut short by rains and cold weather. In a few sections of northern Pennsylvania beekeepers produced an average surplus of 100 pounds per colony or better from buckwheat and fall flowers. The flow from goldenrod, aster and silverrod started ten days earlier in this part of the state giving the bees extra time to gather surplus quantities of nectar before bad weather interfered.

Markets continue very active causing the short crop to disappear rapidly. Many beekeepers are already hunting around for honey to supply their retail trade. The comb honey crop is practically gone and extracted honey threatens to be off the market by mid-winter, at least in so far as local beekeepers are concerned.

Miscellaneous: Robbing has been troublesome all summer causing a greater spread of A. F. B. than for some years. With the scarcity of labor

and tires, the A. F. B. problem threatens to be a serious one. Any let-up now in the inspection service would permit the disease to spread and nullify the result of inspection for the past ten years. It is to be hoped that some way may be found to continue or increase this service. An added problem is the large number of inexperienced beekeepers who have bought bees this year.

Many colonies are decidedly short of food and threatened with starvation. In one yard in southern Pennsylvania 12 out of 30 colonies examined on Nov. 1st. contained less than 10 pounds of honey.

Beekeepers are feeding heavier than for some years but there still remains many colonies not fed. Winter losses will be heavy unless this condition is remedied. Some of the colonies fed may run short of food long before the last of April. The situation is especially serious in the lime stone valleys of the state.—E. J. Anderson, State College, Pa.

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ONTARIO, Nov. 5

Conditions: During the whole month of October the weather in our part of Ontario was ideal for getting bees fed and packed for winter, and November to date (5th) gives no indication of a change. With the exception of a few favored sections of the Province, heavy feeding of bees has been necessary, and as mentioned in last Gleanings, reports of the starvation of many colonies before they were examined prior to Oct. 1st., have been quite common.

A number of years ago when on inspection work, our attention was called to an apiary of over 100 colonies that had been built up the previous fall by shaking colonies infected with A.F.B., on full sheets of foundation and feeding heavily with sugar syrup. This work was done in late September and early October by the late Jacob Alpaugh, an expert beekeeper who will be remembered by many of the older apiarists. The bees wintered in excellent condition and gave one of the heaviest yields of honey reported in Ontario for that year.

Beeswax: Since our last report was sent in, supplies of beeswax have been "frozen" here in Canada and no industry aside from the bee supply manufacturers can buy beeswax without getting a permit from the War Time Price and Trade Board. The ceiling price of 48 cts. is now being offered, and this no doubt will be the prevailing price during the duration unless something unforeseen should necessitate a change.

Honey Prices: With a ceiling now definitely established for both wholesale and retail sales, there will be, for the present at least, no need for any comment, as all competition in the matter of sales is eliminated in so far as price is concerned; and in the event of a bumper crop at some time in the future, quality we suppose would be a prime factor that would determine who would make the sales. But this season, quality is not a very important matter, as anything labeled "honey" is quickly snatched up by the first one who has an opportunity to buy. In Toronto a few days ago, we were impressed more than ever by the great scarcity of honey, by having acquaintances at every turn asking if we could not spare them a bit of honey. Yes, this is decidedly a seller's market and any beekeeper fortunate to have a good crop, will have no trouble in selling his product at a fair figure.

Miscellaneous: The Canada Gazette, Number 197, EXTRA, contains particulars of a drastic ruling just made by the Administrator of Metal Containers, and sanctioned by the War Time Price and Trade Board. Hundreds of items are enumerated, and for such commodity a quota is given as to amount and kind of metal containers that may be manufactured for use in 1943 or longer. Tinplate, terneplate, and blackplate are named as to the kind of metal that is to be used for the various commodities listed. But among all this large list, no mention is made of honey, so the head of one of our large plants which makes honey containers, told me yesterday. Unless a change is made, it looks as though no metal containers will be available for the 1943 crop of honey. To my surprise, no mention is made of molasses, corn syrup, or other syrups, so evidently the manufacturers of these products will be up against the same difficulties as are beekeepers. The Order further specifies that after Nov. 15th, any tin containers already manufactured or in hands of users, are "frozen" and cannot be used without getting a permit from the War Time Price

and Trade Board. Many beekeepers no doubt will have supplies carried over owing to the failure of this year's crop, and it is hard to say what use could be made of small lithographed tins with owner's name and address attached, if not used for the purpose for which they were manufactured.

However, there is no use of worrying over things so far in the future as the 1943 crop of honey, for before that time many things may happen to make restrictions either better or worse.—J. L. Byer, Markham, Ontario.

A Tribute to J. T. Calvert, Secretary and Auditor, The A. I. Root Company, on His Eightieth Birthday

It is not often that mortal man (or woman) can count his birthdays until he reaches the four-score mark. Two men in the office of The A. I. Root Company have arrived at that age in the past year. The first was E. R. Root, Chairman of the Board of Directors, who was greeted with the birthday song on June 23, by 55 of the company's office staff.

The second to reach this goal is Mr. J. T. Calvert, Secretary and Auditor of the Company. The event, December 7th, will not be celebrated in the office but at the home of Mrs. Ethel Calvert, his daughter-in-law, at Alhambra, California, at which time the Calverts and Boyden families at that place will see to it that their uncle, brother, father, and grandfather will be greeted in an appropriate manner.

On September 1, 1886, Mr Calvert married A. I. Root's oldest daughter, Maude. At the time of their 50th wedding anniversary, this was said of him in Gleanings for October, 1936, and will bear repeating here:—

"J. T.", as we call him around the plant, is a man of few words. He is seldom seen at bee conventions because his work is not along educational lines. He is a man of figures and facts. He has a wonderful memory which serves him well as Auditor of the Company.

When it comes to facts and figures and the general history of The A. I. Root Company, he is a veritable encyclopedia. He is like George Demuth, a man who not only knows but remembers with an almost uncanny accuracy.

Following is a brief life sketch:

He was born December 7, 1862, at Reaboro near Lindsay, Ontario. He attended the Reaboro country school. He took work at Oberlin College for seven terms fall and winter, while in the employ of A. I. Root. He continued in that employment under The A. I. Root Company which was organized November 23, 1894. He first worked in the apiaries of A. I. Root, was shipping clerk, buyer, and was gradually promoted until he become Secretary, Treasurer, and General Manager of the Company, which position he held up to 1918, when a younger member of the organization, H. H. Root, became General Manager. In the meantime Mr. Calvert has continued to serve as Secretary and Auditor of the Company at Medina.

"J. T." Calvert at 80.

He is a member of the Congregational Church at Medina and during all his long years has been an active worker in this church.

Of late years, his work has been largely in connection with woodworking specialities in great variety, in the making of which our machinery is especially adapted. At the present time he is busy figuring on war contracts, especially since priorities in the manufacture of hives and bee equipment have been cut by the Government.

A Symposium

on Methods of Wintering

(Continued from November)

One of the oldest bee books in the Gleanings library "The Feminine Monarchie, or the History of Bees", by Charls Butler, published in Oxford, England, 1634, contains some interesting and pertinent information on wintering bees. The second chapter entitled "Of de Be-garden, and Seats for de Hives," has the following: "De Nort fenc' of your Garden scold bee clos and hig, dat de cold wind may bee altogeder kept from dem. But in no wis let de plac bee sadowed from de Sout' sun."

The above sound advice, given 308 years ago is applicable today.

Langstroth and Quinby on Wintering

It is common knowledge that L. L. Langstroth and Moses Quinby, two outstanding leaders in beekeeping, both born in 1810, each wrote a book, both books appearing simultaneously in 1853. It would be interesting, if space permitted, to review in detail what each writer has to say about wintering bees. To avoid the possibility of bias or misunderstanding the entire chapters on this subject in each book should be presented, rather than excerpts from them.

Langstroth, in his book. "The Hive and the Honey-bee," the third edition, stresses the importance of having all colonies populous and rich in stores. Regarding protection he says, "Great care should be taken to shelter hives from piercing winds. In the coldest parts of our country, if upward ventilation is neglected no amount of protection that can be given to hives, in the open air, will prevent them from becoming damp and mouldy, even if frost is excluded. Often, the more they are protected the greater the risk from dampness."

Top Winter Entrances 90 Years Ago

Mr. Langstroth says further. "In my hives all the lower passages can easily be closed air-tight and the bees allowed to go in and out through the winter entrance which is made at the top of the hive."

And so it would seem that in spite of the present controversy on upper entrances, top entrances or whatever we may choose to call them, were used by Langstroth about ninety years ago. "There is nothing new under the sun."

We should not leave Langstroth without one more quotation as follows: "In all northern parts of the country it is very obvious that those who mean to establish large apiaries will have to so winter their bees, that they shall not be exposed to unusual atmospheric changes. **What way precisely is the best can only be determined by careful and long continued experiments. These ought not to be conducted so as to hazard too much in one venture."**

Would that we had more writers at present with a gift of expression, like Langstroth's.

From Quinby's book, "Mysteries of Beekeeping Explained," eighth edition, the chapter on wintering bees, we find the following interesting dissertation on "The Appearance of Bees in Cold Weather": "Warmth being the first requisite, a family of bees at the approach of cold weather crowd together in a globular form, into a compass corresponding to the degree of cold. When at zero it (the cluster) is much less than at thirty above. Those on the outside of the cluster are somewhat stiffened with cold while those inside are brisk and lively as in summer. In severe weather every possible

space within their circle is occupied. Even each cell not containing pollen or honey will hold a bee. Suppose a sudden change brings the mercury down to zero. In a few hours this body of bees speedily contracts by cold. The bees on the outside, being already chilled, a portion of them that do not keep up with the shrinking mass, is left exposed at a distance from their fellows and receive but little benefit from the warmth generated there. They part with their vitality and are lost."

Quinby's observations regarding the loss of bees on the outside of the cluster appear to be in line with those of A. P. Sturtevant of the Division of Bee Culture, of the U. S. Dept. of Agriculture, where he stated recently that "normal winter loss or mortality of bees appears to be due to chilling of bees on the outside of the cluster and not to physiological wearing out of bees."

Obviously Quinby knew little about the inside workings of the cluster, as compared with what has been discovered within the past few decades and referred to in the previous installment of this Symposium.

Wintered with Hives Upside Down

Quinby lived in Johnsville, N. Y., which is on the 43rd degree of latitude where winters are cold. He tried various kinds of winter repositories for bees which included burying them in the earth. He finally decided that a dry warm cellar was preferable for his locality. To get rid of moisture in hives during the winter, Quinby turned them upside down. Here are his own words:

"If a hive were bottom up what would prevent all the vapor as it rises from the bees from passing off? The hive was inverted. In a few hours the glass was dry. (Quinby experimented with glass hives.) I immediately inverted every hive in the room and kept them this way until spring. I was well satisfied with the results of this experiment. There are some who cannot divest themselves of the idea that if the hive is turned over, the bees must also stand on their heads all winter."

Moses Quinby also practiced top entrance wintering about ninety years ago.—M. J. Deyell.

[When we think of Maine we usually think of cold winters. During the fall of 1941 Mr. Chas. A. Pinkham who lives 18 miles from Portland, wrote us about his wintering. We asked him to write us this last spring regarding results and the following is his letter of April 9, 1942.—Ed.]

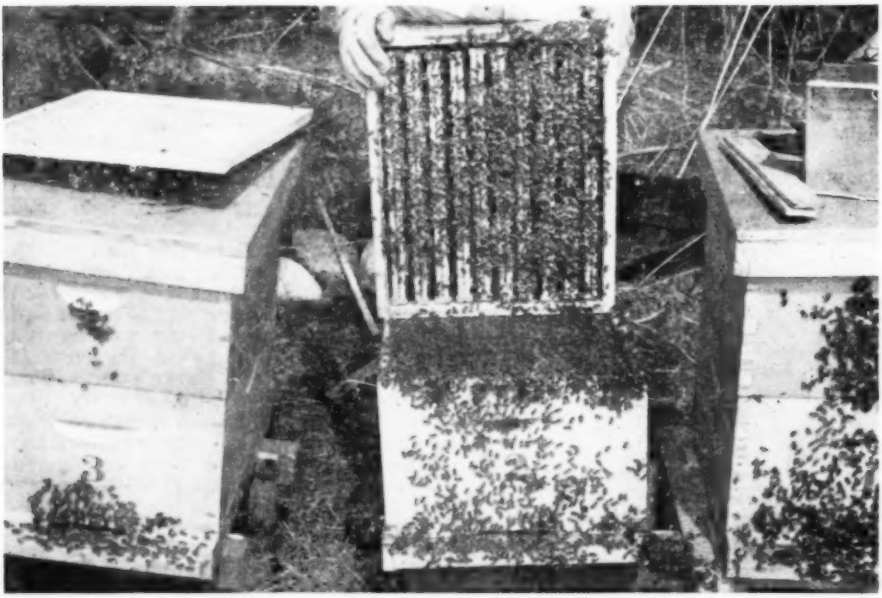
HOW A BEEKEEPER IN MAINE WINTERS

By Chas. A. Pinkham

I removed my slight protective material of corrugated paper, covered with tarred felt, April 2, 1942, just four months after preparing my bees for winter. I found the combs free from mold. The inside of the hive bodies were dry with the exception of the rear or north end wall which showed some slight signs of moisture, also the inner covers, which were swollen a little on the north end only. The top of the corrugated paper boxes under the tarred felt were quite wet. This, of course, was outside the hive. Apparently this was an accumulation of moisture that came out of the top entrance into the front air space and then condensed when coming in contact with the top of the paper box which was sometimes, no doubt, quite cold. Moisture at this location could do no harm. The bees have consumed practically no stores as yet from the second story. There still remains eight or ten pounds of honey in the bottom story. I found an average of about three full frames of brood, in all stages, to a colony, on April 2. The colonies had from 10 to 15 full frames of bees. In fact, I feel I have as many bees per colony now as I had last fall.

The bees on April 2 were doing a good job gathering pollen. I have used this method before, but this is the first time I have used it on all my colonies.

Our mean or average winter temperature here is around 22 degrees above zero Fahrenheit. My winter bee yard is 200 feet above sea level, about 200 yards west from the Saco River and about 40 feet above that River. This past winter we had several nights when the temperature dropped to-15 F. and several days when it did not go above 20 degrees above zero Fahrenheit. We have very little fog here. My method of wintering is not so much to give the bees insulation as it is to warm them up for a short time as often as possible, so they can move to new stores, and at the same time by warming up the hive the moisture is expelled more rapidly through it's top entrance. This, I feel, is shown by finding the top of the corrugated paper box moist and the inside of the hive quite free from moisture, as already mentioned. What I am really doing is giving



This picture of a Caucasian colony was taken April 6, 1942. The Italian and one colony of Carniolans wintered just as well. The colony pictured contained an untested queen introduced the middle of last summer. This colony weighed about 120 lbs. when examined last fall. It was placed in a corrugated paper box covered with tarred paper with an air space on the front. Top entrances were used and no other packing. Note middle front entrance in hive at left.—Chas. A. Pinkham.

them a good warm sun porch around their entrances. With that and the top entrance I am air conditioning the inside of the hives. The black felt paper draws the sun's heat which easily finds it's way through the corrugated paper box and thus warms the air in the front air space.

Next winter I shall have an air space on the rear or north end of the hives where the little moisture was found this spring. I can do this with my present size box by moving the hive body ahead on the bottom board. I shall also make some additional experiments upon locations and size of top entrances. I may put a very small one in the rear of the hive to lead into the air space only, but have none through the paper box in the rear.

Top Entrance Appears Advantageous

I have wintered many colonies here without any protection with not too bad results, but not with anything as good as with this method. In the winter of 1933-'34 I wintered four out of five colonies with no protection but with top entrances. I lost all colonies in heavily packed hives that same winter. Those had no top entrances.

Hambleton, in 1941, tells us. "Not how you pack but what you pack". Langstroth in 1860 writes (see page 346 third edition) "If colonies are strong in number and stores, have upward ventilation, easy communication from comb to comb, and water when needed—and the hive entrances are sheltered from piercing winds, they have all the conditions essential to wintering successfully in open air." It looks as if Father Time plans to uphold the new doctrine or should we say the old doctrine, after more than 80 years? What Langstroth said then seems true to-day. Our ways of going at it have changed a little but we are still trying to do as he recommended at that time in what we think may be a better way than he used.

West Buxton, Maine.

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CELOTEX COVERING FOR WINTER AND SUMMER

By Lewis B. Avery

For about 5 years I have not packed my bees at all for winter; and, of course, have done away with the trouble and expense of packing in the fall every year and unpacking again in the spring. My method of keeping the bees comfortable in the winter, and in the summer as well, is to cover the hive bodies with $\frac{1}{2}$" celotex, as shown in the accompany-

ing drawing. Each hive body is covered from its bottom edge to within 5/8" or 3/4" of the upper edge, so that the metal cover (not shown) may properly telescope on the hive body, A. To prevent the celotex from getting rain-soaked, I paint the exposed surfaces, including the ends and the upper edges of it, with good aluminum paint, also the under surfaces of the handholds, B. This kind of paint does not soak in much, and therefore does not destroy the insulating qualities of the celotex, as oil or some other kinds of paint might, and it lasts well. The celotex is put on with 1 1/4" roofing nails on the ends and sides of each hive body. I prefer to cut the celotex for each side 20" long—just the length of the body; but for the ends, I cut the pieces long enough to lap over the ends of the celotex on the sides, or about 1" longer than the hive end.

The hand holds I cut in each end and each side with a 3/4" auger and a jack-knife after the celotex has been nailed on.

Above and to the right of the front hand-hold of the upper hive body, I bore a 3/4" hole for an upper entrance just under the frame rest. I formerly bored this hole through the front hand-hold; but I do not like this, for one is likely to get his fingers stung when handling the hive body when using such hand-hold.

I also cut out a piece of celotex, C, of the same dimensions as the inner cover and nail it to the upper side of such cover, D, after having covered the escape hole with a piece of section. This makes an inner cover with a dead air space, E, between the celotex and the bottom of the inner cover. Altogether the inner cover is then about 1 1/4" thick; and this with the metal cover added makes a very good upper protection.

This sort of protection I have found to be equal in value to packing boxes with straw or leaves; that is, my bees seem to winter just as well, and they summer just as well, or probably better if they are out in the sun, for the sun's heat cannot so readily penetrate the hives.

Clinton, Mich.

HE DISLIKES MUTILATING HIVES

By S. H. Burton

I dislike the idea of boring an inch hole in the front of a perfectly good hive body, but here goes: I am going to try the top entrance with bottom entrance closed just for once to see how it works. I shall do this early so the bees will get used to this "knot hole" entrance before winter. From my personal experience of over 30 years of handling bees I do not think this idea is so hot. I have seen many a colony winter through in perfect condition with the summer entrance wide open. I have tried top ventilation by tacking a screen wire over the bee-escape hole in the honey board and leaving the outer cover up a quarter inch at the back—result, bees entirely glued over the screen wire. I often wonder if we understand all we know about this winter ventilation business. One spring I transferred a good strong colony out of an old box hive that had cracks in the top big enough to poke your fist in. It had a sort of mansard roof for a top and the bees had jammed it full of honey and spent the winter there in a perfectly normal condition.

And by the way, the best winter packing in the world for this locality is a hive body packed solid with fall honey and pollen. I have tried wrapping them in tarred paper, packing in straw, sawdust, planer shavings, and prefer the honey packing best of all with a good wind-break of trees or buildings, hives facing south and inner covers sealed down tight.

Washington, Indiana.

(to be continued in January)

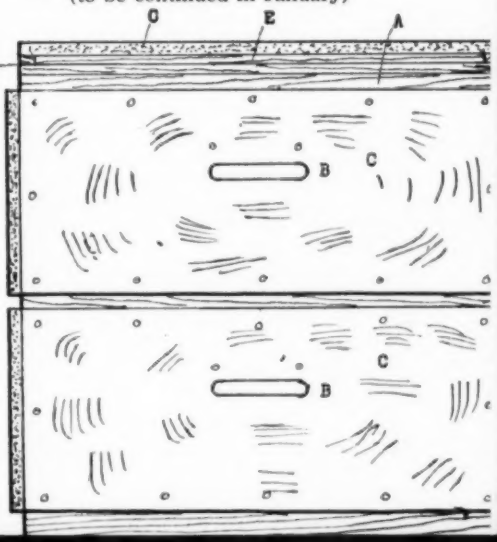

Diagram showing Mr. Avery's plan of covering his hives with celotex for protection, summer as well as winter.

Bee Supply Equipment Under L-170

By Alan Root

As mentioned on page 664 of the November issue of Gleanings the production of all farm equipment manufacturers has been further limited over last year by the issuance of the War Production Board's Limitation Order L-170. W.P.B's "get tough" policy of diverting all raw materials, labor, and transportation, to direct war work and of closing down an industry or converting it to the manufacture of equipment that will fly, float, or shoot was responsible for the severity of the Order. Under L-170 farm equipment manufacture is reduced to roughly 20% of the 1940 production. Bee supplies have faired considerably better than the average and it is anticipated sufficient essential equipment will be available to maintain the industry during the emergency.

In general, farm machinery quotas vary with the kind of equipment, the amount of critical material used in manufacture, the kind of crop normally produced with the equipment and the size of the individual farm equipment manufacturing plant. Under harvesting machinery for example, combines required for grain production have been assigned a manufacturing quota of 18% of 1941 production for the coming year. In this case combines require a large amount of metal and in addition wheat surpluses are great at the moment. Incubators, on the other hand, which require less critical material and are needed to increase the egg production, were permitted a quota of from 31% to 36% of the 1941 production.

Under the Order a quota of 57% was established for hives and 38% for all other bee supply equipment. This, we understand, represents three-quarters of the total quota to be assigned to the industry during the year. Actually, then, the 57% would become 75% and the 38% would become 50% of the 1941 production. In addition to this, all repair parts are permitted a quota of 130% of 1941 and many hive parts will come under this classification.

The task of rationing the available farm equipment through county rationing boards has been turned over to the Department of Agriculture and a permanent rationing order is expected soon. This new Order may, or may not, cover beekeepers' supplies. If it should it would, no doubt, apply to only the large pieces of equipment.

The importance of bees as pollinators of soil building legumes for seed production, and as pollinators of fruit and other crops was evidently given consideration by the Department of Agriculture in their recommendation of quotas to the W. P. B. The rapid shifting and turnover of personnel in both the Department of Agriculture and the War Production Board makes the task of keeping officials informed on the value of the industry doubly hard and seemingly a never-ending one.

This war is a war of materials and man power to a degree never before known. We see daily the results in civilian industries of the lack of sufficient quantities of both materials and labor. As an industry we will be more than willing to make any needed sacrifice to help bring this struggle to a rapid conclusion. At the same time it is the duty of the bee industry, in a tactful manner, to keep before those government officials who establish war policies affecting the industry, the importance to the war effort of the pollination service of the bee and beeswax and honey production. Men in Washington who understand the industry, such as James Hambleton and Harold Clay, have been doing an excellent job along these lines. Support also from various divisions of W.P.B. and the work of many individuals representing various phases of the industry have helped to keep the usefulness of the industry in the foreground.

As the war progresses food will assume a greater and greater importance. Careful planning will be required during 1943 to obtain maximum results from your honeybees but you may be sure that they will be needed in 1943 more than ever to help increase the food production of this Nation.

American Honey Institute News Notes

May the Holiday Season bring good news from the boys in service and may it bring Our Country close to Victory and World Peace.

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A radio station in a large city writes us, "After offering your booklet 'Honey Recipes—for Sweets, for Energy, for Conservation' over the air the response was overwhelming."

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May we suggest that you send a copy of "Honey Recipes for Sweets, for Energy, for Conservation" to your friends and customers as a holiday greeting. Plain envelopes will be furnished without charge with orders for this purpose.

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The slogan—

"From Sea to Shining Sea,
The Nation Honors Mr. Bee."

appeared in an eastern newspaper and brought a number of requests for honey recipes to the Institute.

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The first coffee ration period will last for five weeks—from November 29, 1942, through January 3, 1943 Stamp 27 of the Sugar Ration Book will be used during this period. It entitles an eligible purchaser to buy one pound of coffee. No coffee will be sold to anyone under 15 years of age.

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In a sports column we read that naval aviation cadets have such a strenuous athletic program their meals add up to 5000 calories per day. The sample day's menu is:

BREAKFAST:

Tomato juice, bran flakes and cream, scrambled eggs and bacon, whole wheat toast, HONEY, coffee and milk.

LUNCH:

Canned peaches, roast beef, baked yams, string beans, Waldorf salad, toast, HONEY, tea and milk.

DINNER:

Orange juice, thick steak, creamed potatoes, peas, lettuce and tomato salad, toast, HONEY, milk, chocolate ice cream.

Has your town a "Cookies for Rookies" Club? Let us make it a Honey Cookie Club and send **plenty** of honey cookies **often** to the boys in camp. Address the well-packed box to the camp in care of the U. S. O. Director.

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Honey Butter Frosting

Cream 2 tablespoons butter; add 2 tablespoons honey and blend. Add ⅓ cup sifted confectioners sugar and cream thoroughly. Add dash of salt. Then add 1 egg white, unbeaten, alternately with 2 cups sifted confectioners sugar, beating well after each addition. Add ½ teaspoon vanilla. If necessary, add more sugar until of right consistency to spread. **(All measurements are level.)**

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Many of the requests for "Old Favorite Honey Recipes" during November came because of references to the book in Wisconsin Agriculturist—a Baltimore paper—Toronto Weekly Star Bulletin—Cincinnati Enquirer—Family Circle—Grocery Gleanings—Bee Journals—and because of an interview by the Director of Women's Activities, National Broadcasting Co., Washington, D. C. with the Director of the American Honey Institute. Women outside the industry are ordering "Old Favorite Honey Recipes" for Xmas gifts.

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This morning the post man came to the office with a package of 100 books that had been returned from Washington, D. C. The package was marked "Deceased." It had been addressed to Mr. E. Lyn Woodin, who owned and operated an exclusive store in which he had been selling "Old Favorite Honey Recipes" along with his imported domestic honey. We first heard of Mr. Woodin a few years ago through the Director of Women's Activities of the National Broadcasting Company in Washington, D. C. She told us that a visit to his shop inspired her so much that she went back to the station and gave a twenty-minute broadcast on honey. We are saddened by this news, but this is life!

Spinster Jane Says

Last night (Nov. 10) we had our heaviest frost this autumn, and today there was a light fall of snow. The ground is white,—a welcome sight to the hunters who have come north to hunt the elusive deer.

From my window I can see several snug wintering-cases, already filled with colonies, and warmly packed with dry planer shavings, but I can also see a number still unpacked, standing bleakly in the snow. The bees are quite undisturbed by the sharp change in temperature. You must put your ear close to the hive to hear their murmur of contentment. They have plenty of winter stores and should await packing without harm to them. Perhaps, as the men say to us sometimes, "Waiting for a thing you need badly will only make you appreciate it the more when it comes."

Boy has to make new wintering-cases. He has a special saw for this business, and makes them nights or in his spare time in the basement of his city home. He brings them up, a few at a time, and assembles and packs the bees, but last time the hunting bug lured him away. He took time off to get his deer, and who can blame him with meat so scarce and so expensive?

We didn't realize anything from our package bees this year. The queens—so many of them—were superseded, and moving several times also was to blame. They were left the stores they had gathered and some had to be united. It is hard enough to winter a strong colony, so why try to pack weak ones?

From thirty colonies that survived wintering in a damp cellar, we took off an average of around 85 pounds per hive, and our net profit was close to $375. I do not know if this is a poor average or not, but since Boy can only count it as a side-line, while engaged in manufacturing war materials, he was satisfied, but hopes to better it greatly another year.

Our weather is too variable to be ideal for beekeeping. That is one thing that keeps the bee-minded ones from trying it. They ask some business that they can bank on as sure—if there be such to be found.

That is why we have opposition. With Boy it is love for the bees that keeps him at it, and it will be no side-line when once the war ends. That may be the reason, too, for the wonderful market we have built up. We could have sold five tons of honey had we had it, and that without leaving home. With us it is a sort of "Cash and Carry" business, and most customers gladly furnish their own containers, getting a reduction of the price of the pail.

That bear we wrote about is no more. No more fatted calves will fall a prey to his sharp teeth and claws. He returned to the scene of his crime, was caught in the bear-trap, and despatched. When the S. O. S. came, for a rifle and the man to fire it, nearly all the men left in the community were busy pressing hay for a neighbor. All were on the qui vive to see the bear, so the press was stopped, and a big truck took the men who were all in at bruin's finish.

The bear measured seven feet from tip to tip (nose to hind foot) and weighed 210 pounds. Two claws from the middle of one hind foot were gone—cut off cleanly, by the strong trap. He then was the culprit who had killed and eaten the calf, and had later gotten in the trap. And I had blamed the killing on a lady bear, the "female of the species." Surely, I, Spinster Jane, am slipping.

Queer subjects for an old lady to mention,—deer and bears,— but they have been closely connected with our pioneer life, ever since settling here, so we are only running true to form after all. Bears have stolen fat lambs and calves, have looted our choicest berry-patch, and venison has been, at times, a most welcome addition to our food supply.

We are listening eagerly to the radio news now. In this new phase of the war in French Africa, so breath-takingly realistic, we must all pray for a speedy victory. Christmas, so close at hand, will be a sad one in thousands of homes. Even Nazi mothers love their sons, but while they are fighting for greed of possession, ours is so much finer an objective—the freedom and equality of all nations, races and creeds. "Peace on earth, good will to all men" will come only after decisive victory for our allies.

May Christmas bring victory much closer.—Spinster Jane.

Just News

The Twenty-first Short Course in Beekeeping will be held at the University of Manitoba, Winnipeg, Jan. 18 to 29, 1943. The whole field of practical beekeeping will be covered in 55 fifty-minute periods which will include demonstrations on the use of beekeeping equipment. The tuition fee is $5.00. For further information, write Prof. A. V. Mitchener, of the University.

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The Middlesex County Beekeepers' Association will gather at 19 Everett St., Concord, Massachusetts, at 7 P. M. on Saturday, December 26. The ladies say that the supper menu is to be a **honey** of a suprise, and anyone who substitutes sugar for honey in their coffee will get no dessert. Mr. Albert C. Blackman, of Wollaston, will talk about "Beekeeping on the South Shore". To you, interested in bees, this Association wishes a joyful Christmas.—A. M. Southwick, Pres.

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The Indiana State Beekeepers' Association held its annual convention in the State House, Indianapolis, November 10, with H. R. Mathews of Indianapolis presiding. Interesting talks were given by Mr. L. R. Stewart, of Newport, and Professor Elwood Montgomery, of Purdue University, Lafayette, Indiana, and there was discussion of important matters by others present. The convention voted to buy $500.00 of United States War Bonds, and $25.00 to the American Honey Institute. New officers for the coming year are: President, Mr. H. J. Link of Laporte, Vice Presidents, Mr. Guy S. Little, Connersville, Mr. Benj. H. Wilkins, New Augusta, and Professor Montgomery of Lafayette; Mr. James E. Starkey of Indianapolis, Secretary, and Herman S. Sample, Lizton, Treasurer.—W. H. Starrett, Indianapolis, Ind.

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W. E. Anderson, State Entomologist of Louisiana, appeared before the various sections of War Production Board, Washington, D. C., recently in behalf of beekeepers in the United States who are engaged in shipping package bees and queens, to obtain permission to purchase essential supplies to prepare cages and feeder cans for shipping bees. It developed that the W. P. B. does not require a priority as a condition for the purchase of nails and black screen cloth. A letter confirming this decision was sent to Mr. Anderson by E. F. Studwell, Warehouse Unit, Room 1526 B. SSB. All bee and queen shippers are receiving a copy of this letter which should be presented when nails and screen are purchased. Regarding cans for sugar syrup, the request was made that a blanket order be issued to can manufacturers authorizing sales of such cans to bee shippers. However, until such time as W. P. B. acted on this recommendation, application for cans should be made either on Form PD-1-a, or by writing a letter appealing to W. P. B. that permission be granted to buy cans. It is very necessary to address War Production Board, Containers Division, Railroad Retirement Building, Washington, D. C., Attention: Mr. Robt. S. Solinsky, Chief Metal Can and Collapsible Tube Section. If any difficulty is experienced bee shippers should write W. E. Anderson, Box 4153, Capital Station, Baton Rouge, La., and he will take the matter up with Washington.

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A correction: In "Just News" for October, it is stated that the Finger Lakes' Honey Producers' Cooperative retains $.04 per pound for operating expenses, whereas the amount retained is only $.004 or four-tenths of a cent per pound.

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At the Georgia State Beekeepers' meeting held Nov. 10 in Tifton, the following officers were elected for 1943; President, P. Y. Ryals, of Clayton; Vice-Pres., F. W. Jarnigan, of Homerville, Secretary-Treasurer, W. P. Yarborough, of Hahira.

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C. W. Radloff, of Cecil, Wisconsin, a prominent beekeeper, a member of the Wisconsin State Beekeepers' Association and Shewano County Association, passed on recently at the age of 73.

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At their annual meeting at Trenton, N. J., on Jan. 28, 1943, New Jersey beekeepers will find much which will be helpful especially during wartimes. Dr. E. J. Dyce, Extension Specialist in Beekeeping, Ithaca, N. Y., will be the out-of-state

(Continued on page 757)

Asked and Answered

Wintering Bees on Fall Honey

Question.—How would you prepare 47 hives of bees for winter with a fall crop of goldenrod honey? They have from 25 to 60 pounds or better, per hive. These bees have more than enough to winter on but this honey is strong. In the last 15 or 20 years I have wintered my bees on sugar syrup alone and have wintered about 100% "cellar wintered". Now my question is, how will I winter on goldenrod, aster, and other fall flowers? I have saved back about 400 pounds of good honey to go along with what sugar I can get, which is about 5 pounds per hive in this State.—Elmer Bethel, Wisconsin.

Answer.—You have asked a hard question. Straight sugar is excellent for wintering in the cellar and likewise for outdoors but the general opinion prevails that well ripened good table honey is preferred to sugar syrup. In the first place it costs money to get the honey out of the combs and when we do this we must replace it, and that costs money. It is generally believed that honey already in the comb is cheaper than making the transfer of honey to sugar. Goldenrod honey will be suitable provided it is well ripened and sealed in the combs. We, therefore, advise you to leave not less than 40 lbs. of it on the hives. If you take it all out, you will have no trouble in selling it because the crop is short. It was formerly believed that aster honey was not suitable for wintering because it is usually gathered during cool and frosty weather and is not thoroughly ripened and cold weather comes on and the bees are not able to cap it over, much less ripen it. Such honey evidently causes dysentery. On the other hand, it is believed that a well ripened aster honey is not a bad winter food if the colony is strong and well protected.

Wintering Bees in Vacant House Unadvisable

Question.—Would it be advisable to move bees in on the ground floor of an old vacant house which is nearby? Most of the windows have been knocked out or blown out although the roof is good and rooms are dry. The windows could be covered with paper if necessary.—Vincent Stegenga, Michigan.

Answer.—It would be preferable for you to winter your hives of bees out of doors, in a spot reasonably well protected against the prevailing winter winds, rather than to attempt wintering in the old vacant house. The trouble with wintering in a building is that the bees, during a warm spell of winter, are likely to leave the hives and fly out through the windows and may not be able to return from out of doors to the hives where they belong. Some beekeepers winter in a bee cellar. Such a cellar should be under ground so that the temperature during the winter months may not change to any great extent. A temperature between 40 and 50 degrees Fahrenheit would be ideal. Furthermore, such a winter repository for bees should be absolutely dark so that bees may not leave their hives. If you have only a few hives of bees they could be placed in a fruit cellar, underneath your dwelling house, provided this cellar is divided off from the main part of your cellar and provided the compartment intended for the bees is absolutely dark and cool.

Rearing Young Queens in Top Stories

Question.—This next spring I plan to requeen my colonies in the following manner: About March 15 I will take my two-story hives and put two screens between the bodies. On the top screen I will fix an entrance to the food-chamber, facing in the opposite side of the brood-chamber entrance. The bees in the top story will realize they are queenless and raise a queen from the eggs in the frames of brood I gave them from the bottom story. The double screen keeps the two queens in the hive from stinging each other, and the heat from both nuclei helps to build them up faster. I can either kill the queen in the brood chamber that was old and take the two screens out and let the young queen come down, or I can kill the old queen and take the top story off and put a bottom-board under it and have two colonies instead of one. This way I can increase or requeen as I like. What do you think of it?—George E. Cain, California.

Answer.—The plan as outlined in your recent letter for getting a queen reared from brood in an upper brood chamber should work, provided at least one super is used between the two brood chambers to separate them. You may not have 100% success in getting queens mated as some of the virgin queens are likely to be lost. However, this method, if it is worked during reasonably warm weather when an abundance of drones are in the hives, is likely to give reasonably good success. If you keep the queen in the lower brood chamber under a queen excluder, it will then be necessary to place only one screen under the top brood chamber. You, of course, would know this.

Rubber Hose Connection in Extracting Equipment

Question.—Would a rubber hose (common radiator hose cut to length) have any effect on honey? I changed my extractor, and have made a connection to the pump with this hose. Will it give the honey a rubber taste in any way?—W. E. Rose, Michigan.

Answer.—In almost all installations of honey pumps a rubber hose is used between the extractor and the pump. The reason for this is that there is likely to be a slight movement of the extractor and a solid connection very often gives trouble because leaks develop. There is no appreciable action on the rubber by the honey and no one has ever detected any taste of rubber in the honey. As a precaution, however, the hose should be thoroughly washed out first for there is often talcum powder, soapstone or sulphur on the inside of the hose.

The Relative Sweetness of Dextrose and Corn Sirup

Question.—Since cane and beet sugar have been rationed, can other sugars such as dextrose and corn sirup be used instead and what is their relative sweetness compared to cane or beet sugar?

Answer—Taking up the points of inquiry in the order in which they occur in your letter, the relative sweetness of corn sirup and of dextrose comes first. Dr. W. B. White, Chief of the Food Division, Food and Drug Administration, has published the "finding of the Secretary of Agriculture" as being "that dextrose is two-thirds as sweet as sucrose, weight for weight"—(The Fruit Products Journal, vol. 19, no. 10, page 291; June 1940). A review of the literature, independent of this, had satisfied me that the value of 66 for dextrose sugar (on the basis of sucrose at 100, weight for weight) represents its general average sweetening value.

Since corn sirup is essentially a heavy aqueous solution of the three carbohydrates — dextrose, maltose, and the incompletely saccharified starch product "dextrin"—and since maltose is held to be distinctly less sweet than dextrose, and dextrin is not a sweetening agent, it follows that even the high-conversion corn sirups must be considerably less sweet than dextrose itself. This was found to be the case by Dahlberg and Penczek.

There have been developments in the manufacture of sweeter "high-conversion" corn sirups, and particularly in enzyme converted corn sirup. Differences in composition, as between the older and the "present day" sirups, were discussed by Dr. Stroud Jordan in 1936 (The Manufacturing Confectioner, vol. 16, no. 5, p. 36-38; May 1936). Also the enclosed copy of an article concerning the use of enzyme converted corn sirup in ice cream manufacture by Tracy and Edman, shows the composition of one of these "present day" sirups to be moisture 18.00; dextrose 34.85, maltose 19.11, and dextrin 27.76 per cent.

To this extent, the newspaper clipping enclosed with your letter seems accurate; but the value of only 28 per cent sugar, assigned to the older type of corn sirup is much too low, according to analyses we have seen. —G. P. Walton, Associate Chemist Agricultural Chemical Research Division, Washington, D. C.

Left to right: Frank Pellett, L. C. Dadant, Roy Grout. Taken in the Pellett Gardens, Atlantic, Iowa, July 15, 1942. Note the Chapman honey plant growing in the background.

Romance of Sweet Clover in North Dakota

By E. R. Root

Fig. 1.—Dr. J. A. Munro, entomologist and bee extension worker of the North Dakota Agricultural College, Fargo. During the last 20 years he has grown up with sweet clover in North Dakota. He is doing good work in teaching how to keep bees better. He did his graduate work under Dr. Phillips recently in obtaining his degree, as noted on page 496 of our August issue.

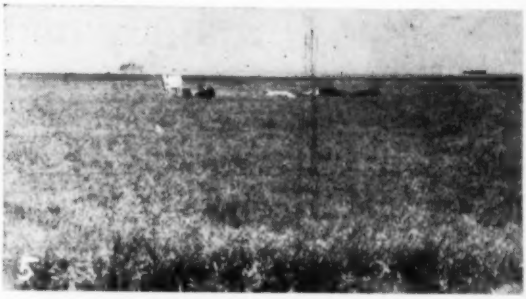
Fig. 2.—Some idea of the heavy growth of sweet clover in North Dakota and Minnesota is shown here. The writer stands in the back ground of both Figs. 2 and 3.

Fig. 4 shows how the cattle crop off the tender tops of sweet clover. This cropping off prolongs the honey-bearing season, in some cases till frost.

Shortly following the first World War, the price of wheat all over the United States took a tumble. North Dakota had been a wheat-growing state and when the crash came, it, too, left the farmers with a lot of wheat that they could not sell. The situation went from bad to worse. Farmers failed; banks closed their doors. While a like situation took place in other parts of the country, it was much more severe in North Dakota.

Then the cry went out from the agricultural stations over the West that farmers should diversify—not raise just one single crop. Fortunately, at the time, sweet clover as a legume was beginning to attract attention. Farmers of North Dakota were urged to try it, and they did so. Vast fields were sown to sweet clover, and in its wake came honey—and lots of it. Apparently almost over night North Dakota went from dire depression to a high state of prosperity. Banks reopened; cattle were put into the sweet clover fields; beekeepers moved up into that beekeeping paradise. We then began to hear of reports of 400 pounds average per colony of beautiful white fine flavored sweet clover honey.

It didn't take me long at the time to make my way up into this paradise of beekeeping. Sure enough, when I got there, I found the hives in many apiaries piled up six, seven, and ten stories high. One case in particular, —a beekeeper told me he ran out of supers. What did the bees do? They kept right on building great pilasters of comb on the outside of the hives, reaching down to the ground and clear up almost to the second or third story. This was repeated again and again. Beekeepers rushed into this land of promise. So also did farmers from other states. The acres of sweet clover were increased, cattle and sheep were scattered over the fields. The products of North Dakota began to show up as cheese, but-



In Fig. 5 we find cattle in the background in one of those enormous fields of sweet clover. The cattle were all feeding but one and he was a bull that looked too threatening to the editor to venture further. But Dr. Munro made a closer approach as shown in Fig. 6.

Surrounding these immense fields and to keep in the cattle, was an electric fence, for which both man and beast have a profound respect.

ter, and honey—beef galore, sheep, and wool. The rush to North Dakota was much like a stampede of farmers to Kansas—and to the Klondike.

No one at the time believed that there could be a slump and that there could be unfavorable seasons, that sweet clover would be stunted and yield little nectar. All of these things happened but not without leaving sweet clover as one of the major crops of North Dakota. I had expected in these latter days that sweet clover would drop out—that root-rot or some disease would destroy it, as has occurred in some other states, and that the farmers would go back to wheat. But, no, sweet clover is still one of the major crops as the pictures here shown will prove.

When I first went to North Dakota, in the days of 400-lb. average per colony, I met a young man that I had previously met at the Ontario Beekeepers' Association meeting, in Toronto, the fall of 1921. I refer to James A. Munro,—a young man who I considered of great promise. He was then doing some student work on the granulation of honey.

He since told me that that experience was of great help in getting a better understanding of the granulation problem. When I next saw him he was a full-fledged entomologist at Fargo, North Dakota (N. D. Agricultural College) during the days of the first bloom in sweet clover. He had a class in beekeeping and I was not a little interested in the enthusiasm shown by him and his pupils.

Naturally I was interested to know about sweet clover and it seemed to me that what I saw in the fields going out of northern Minnesota up into North Dakota, this was going to be a year of a bumper crop of sweet clover, for it seemed to line the roadsides all the way from Detroit Lakes to Fargo.

In our last issue, page 682, I showed a picture of Dr. Munro, one of his experimental apiaries and some of the roadsides of the country lined on each side with sweet clover. I told him that I was not only pleased but gratified to see that sweet clover was coming back.

The pictures shown in this issue will indicate that sweet clover has not lost out. The soil of northern Minnesota and southern Dakota seems to be well adapted to the growth of this legume. You will see by some of the pictures that fat cattle are browsing. They bite off just the tops which are soft and succulent, thus enabling the clover to continue on clear up to frost time.

I could not help but think when I came back and looked over the vast acreages as shown by these pictures, of the land flowing with milk and honey. It seemed to me then as I saw these fields, surely there would be another bumper crop, possibly reaching the 200 mark. But the season seemed to play out as it did all over the country and the crop was only light. On September 25, Dr. Munro writes:

"The two clippings which I enclose will give you the story of Minnesota and North Dakota. They show a hive average of 65 and 88 pounds respectively. Most beekeepers tell me that prospects looked quite encouraging up until the first part of August; then the cloudy, cool weather took over and ruined the picture. The situation reminds me a lot of 1928 when too much rain cut down the yield."

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SOLD OUT of Michigan clover honey. We thank you. Will see you another season, with more bees. Again thanking our many customers, we remain, E. D. TOWNSEND & SONS, Northstar, Michigan.

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WANTED L. C. L. shipment, or carload of white honey. Write Herbert D. Smith, 1 Montgomery Ave., Takoma Park, Md.

WANTED—Honey and beeswax. Mail samples, state quantity and price. Bryant & Cookingham, Inc., Los Angeles, Calif.

CASH PAID for extracted clover honey. Send sample and best price. Clover Bloom Honey Co., General Delivery, Shrewsbury, Mass.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

CASH PAID for extracted white clover or light amber. Send samples and best price to Honeymoon Products Co., 39 E. Henry St., River Rouge, Mich.

WANTED—Extracted honey in ton lots or more. Send samples and quote price delivered here. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

WANTED—White clover and light amber honey. Any amount. Cash at time of delivery. Clover Blossom Honey Co., 712 Kossuth St., Columbus, Ohio.

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BRIGHT ITALIAN AMERICAN QUEENS. Wintered in strong nuclei, 70c each. D. W. Howell, Shellman, Georgia.

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FOR SALE: Apiary of 38 colonies Italians on Vancouver Island. Guaranteed disease free. Equipment and four-roomed house. Price reasonable. M. Maynard, Lake Cowichan, B. C., Canada.

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A chicken ain't nothing but a bird.
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Neither is a drone anything but a bee.
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headed by such Queens are our specialty. We have our own queen yards and produce the bees for packages. You will find them exceptionally Productive, Gentle, and Conservative of stores.
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WANTED—Experienced man in queen, package, and honey production. Year around work. Give full particulars when replying. Al Winn, Rt. 1, Petaluma, Calif.

WANTED—Man for general bee work. Must have some experience. Reliable and clean habits. Married man preferred. Can furnish all year work. E. L. Lane, Trumansburg, N. Y.

WANTED for season of 1943, helper in system of 23 apiaries, about 1000 colonies. Must be strong and reliable, preferably with some experience. Possibly a permanent job, with opportunity for share of returns. Ray C. Wilcox, Odessa, N. Y.

WANTED—An experienced man and wife to manage an apiary of 200 colonies of bees and 20-acre farm. Everything modern and equipped with electricity. Middle-aged preferred. Fine home. Can have the job 5 or 10 years, or longer, if satisfactory. For particulars. Write Lee Horning, Morrison, Ill.

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When Writing to Advertisers Mention Gleanings

WINTERING BEES

(Continued from page 726)

brood chambers? In the first place, it is practically impossible to accommodate an average sized cluster, in one standard hive body, pollen, and a supply of honey sufficient to satisfy the demands of a colony until the next dependable flow. Operate your colonies in at least two brood chambers. Avoid shifting of brood chambers or combs particularly in the fall. The bees must be permitted to retain their winter set-up as they have prepared it.

Perhaps the biggest problem is how to induce the bees to store more honey in their brood chambers toward the end of the honey flow without restricting brood rearing, or any loss in crop due to congestion.

A satisfactory solution would require on the part of the beekeeper a thorough knowledge of the late flows in his territory and superb judgment in supering. At any rate, make an attempt to have the late honey stored in the brood chambers.

There are too many small, dark honey crops extracted which frequently in the past were difficult to market. This same honey stored in the brood chambers would contribute to better wintering and subsequent stronger colonies the following season; colonies in shape to take full advantage of the light honey flows.

Ripon, Wisconsin.

"THE MECHANISM OF COLONY RESISTANCE TO AFB."

(Continued from page 716)

sufficiently alert and industrious in house-cleaning to remove all infected larvae in the early stages of development of the disease organisms. It must clean out the infected material before the spore stage is reached to be highly resistant. Colonies in which disease is allowed to reach the spore stage and later cleaned up probably represent a less valuable and dependable type of resistance. Apparently certain conditions as weather or climatic conditions help or hinder a clean-up by affecting the response of the colony to the infection.—E. R. Root.

• • •

JUST NEWS

(Continued from page 749)

speaker. Some of our best local talent will enrich the program with helpful suggestions based on their experience.—Elmer G. Carr, Sec.-Treas.

• • •

Subject to the approval of the Board of Directors, James Gwin, president of The American Honey Producers' League, has appointed Robert S. Filmer to fill the vacancy in the office of Secretary and Treasurer created by the resignation of John Conner who is now in the Army. Mr. Filmer is associate Entomologist at the New Jersey Experiment Station, New Brunswick, N. J.

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Dept GB La Grange, Ill.

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(4) Work done by our Institute is bearing fruit and will continue to do so during the years ahead.

(Help yourself by helping the Institute)

Send contributions to

THE AMERICAN HONEY INSTITUTE

Madison, Wisc.

Index to Gleanings in Bee Culture

Volume LXX, 1942

In using this index the reader should not fail to note that it is divided ito five departments, namely: General, Editorials, Contributors, Illustrations and Departments. The index of General includes everything except Editorials. Illustrations, Departments and Contributors.

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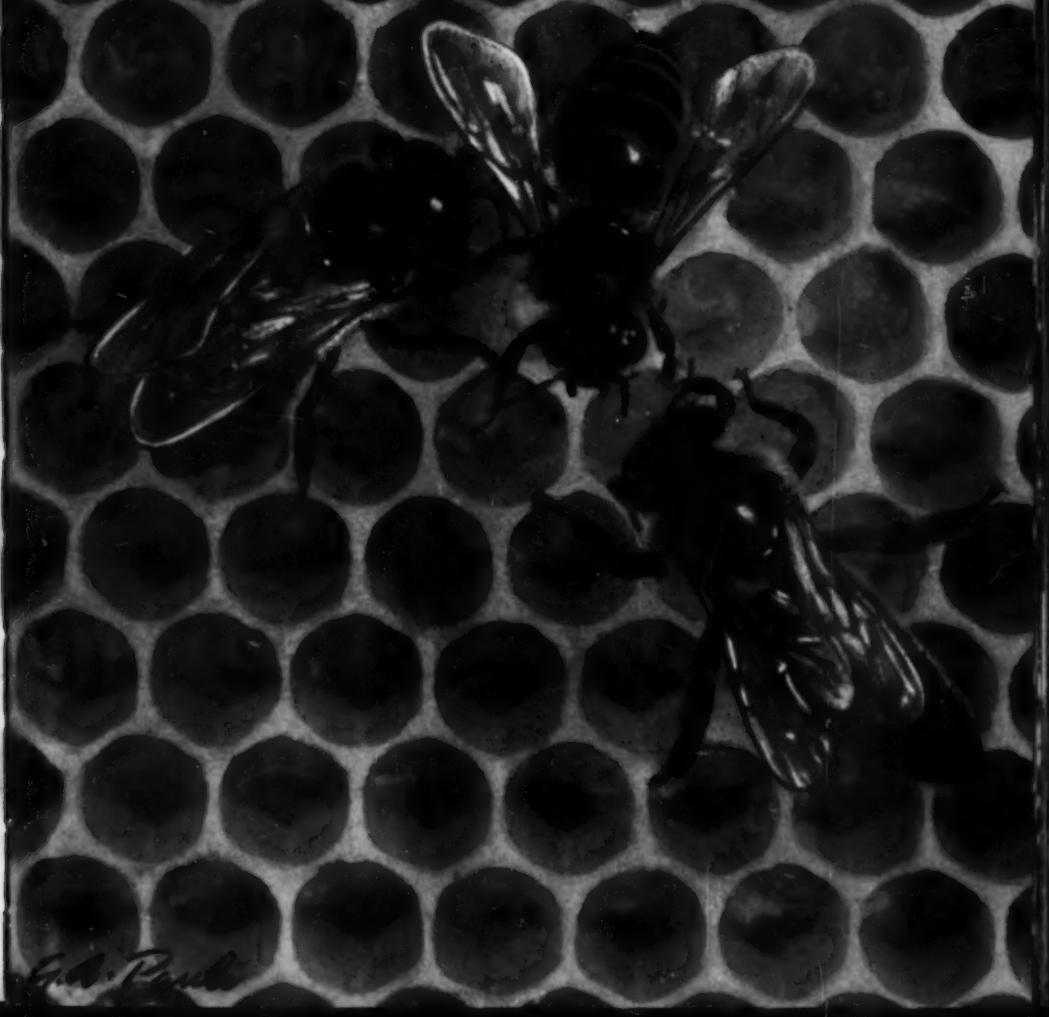
Gleanings in Bee Culture

JANUARY • 1942



Hours of Sunshine in 1942

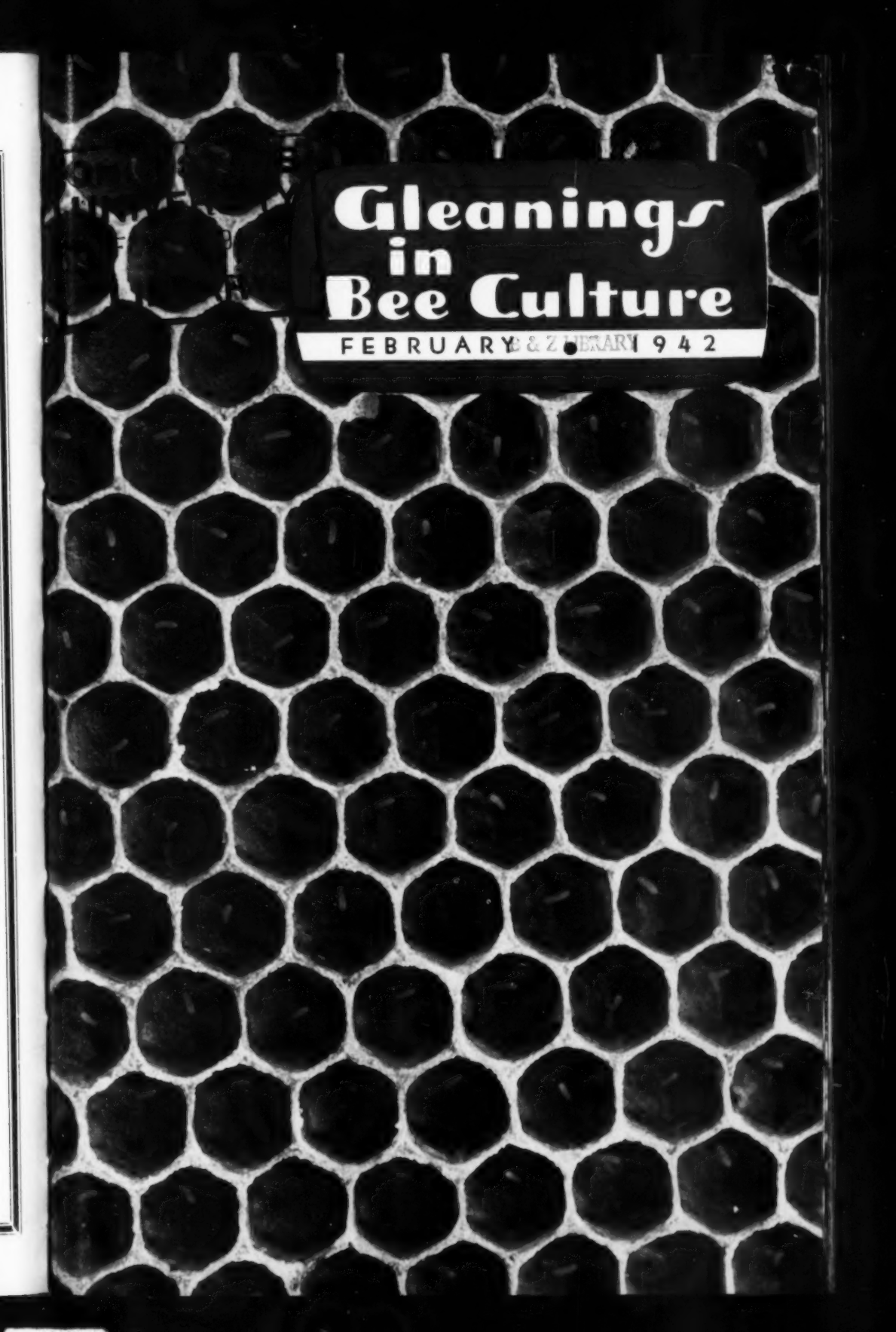
—Will find the buzzing bees winging their way from flower to hives with their precious loads of nectar. Some will wing their way to hollow trees, some to rock crevices, while others will reward their owners who have provided modern hives.

We hope there will be many hours of sunshine for our friends throughout the world. During the past year we have given many hours of serious thought to improving our goods and service.

Your purchases have been appreciated and we hope have brought continued satisfaction. May you have many hours of sunshine during 1942.

Root QUALITY BEE SUPPLIES

The A. I. ROOT Co.
Medina, Ohio


Gleanings
in
Bee Culture
FEBRUARY
1942

John Burghardt ---

Carload honey producer in Central Iowa recognizes quality in bee supplies.

In 1935 -- He wrote:

"I use a **45-frame Simplicity Extractor** as I believe it is the best large extractor on the market.

"We break only 25 to 35 frames in extracting 35,000 cans of honey, and these get broken because they most always contain old candied honey which forces the combs to break in any extractor."

Root QUALITY
BEE SUPPLIES

To-day -- He writes:

"We now produce all extracted honey and have been using a 45-frame Simplicity Extractor for 12 years. While many carloads of honey have passed through this machine, including the drying of cappings, it is still in good condition for many more years of service. Our business is increasing and we need another extractor. While there are many other good makes of extractors on the market, our old **45-frame Simplicity Extractor has given us such good faithful service,** we decided on buying a second one.

"We have most all of our bees in Root hives, some of which have been in steady use for 27 years, and are still in good shape."

Satisfaction Guaranteed Year After Year

The A. I. Root Co., Medina, Ohio

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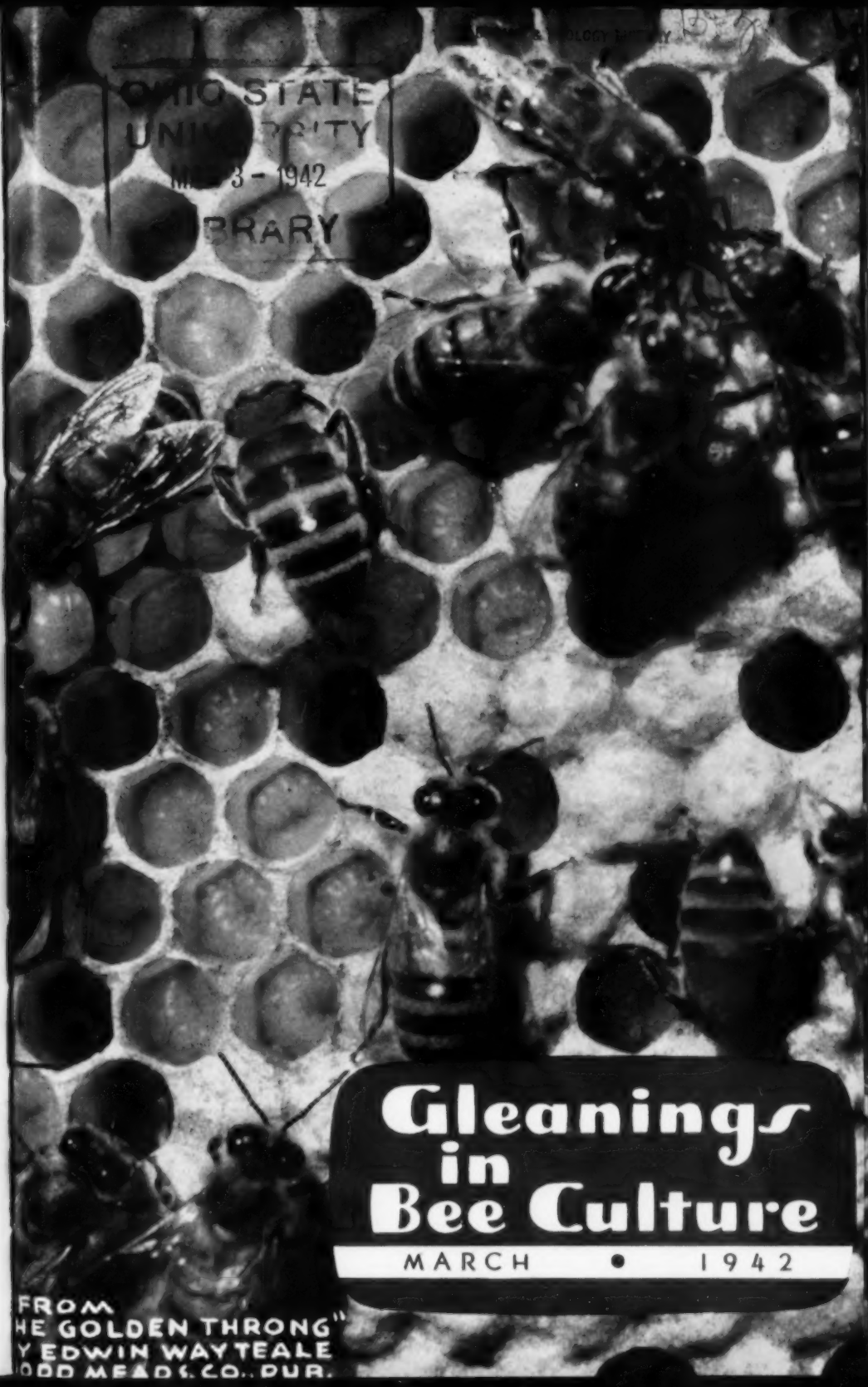


Gleanings in Bee Culture

MARCH • 1942

FROM
HE GOLDEN THRONG"
Y EDWIN WAY TEALE
ODD MEAD & CO., PUB.

Keep the Bees Flying

--Means more honey to relieve the sugar shortage.

--Means more fruit to balance the American diet.

--Means more vegetables, more clover seed, etc.

YOUR APIARY, large or small, should be operated to produce a maximum amount of honey. Good management plays an important part, but your colonies should be provided with plenty of extra supers and foundation to take advantage of a maximum honey flow.

5 Full-depth Supers, KD with Frames **$7.15** Your Season's Requirements

Root QUALITY

Hive bodies and supers are made accurately and with the proper bee spacing.

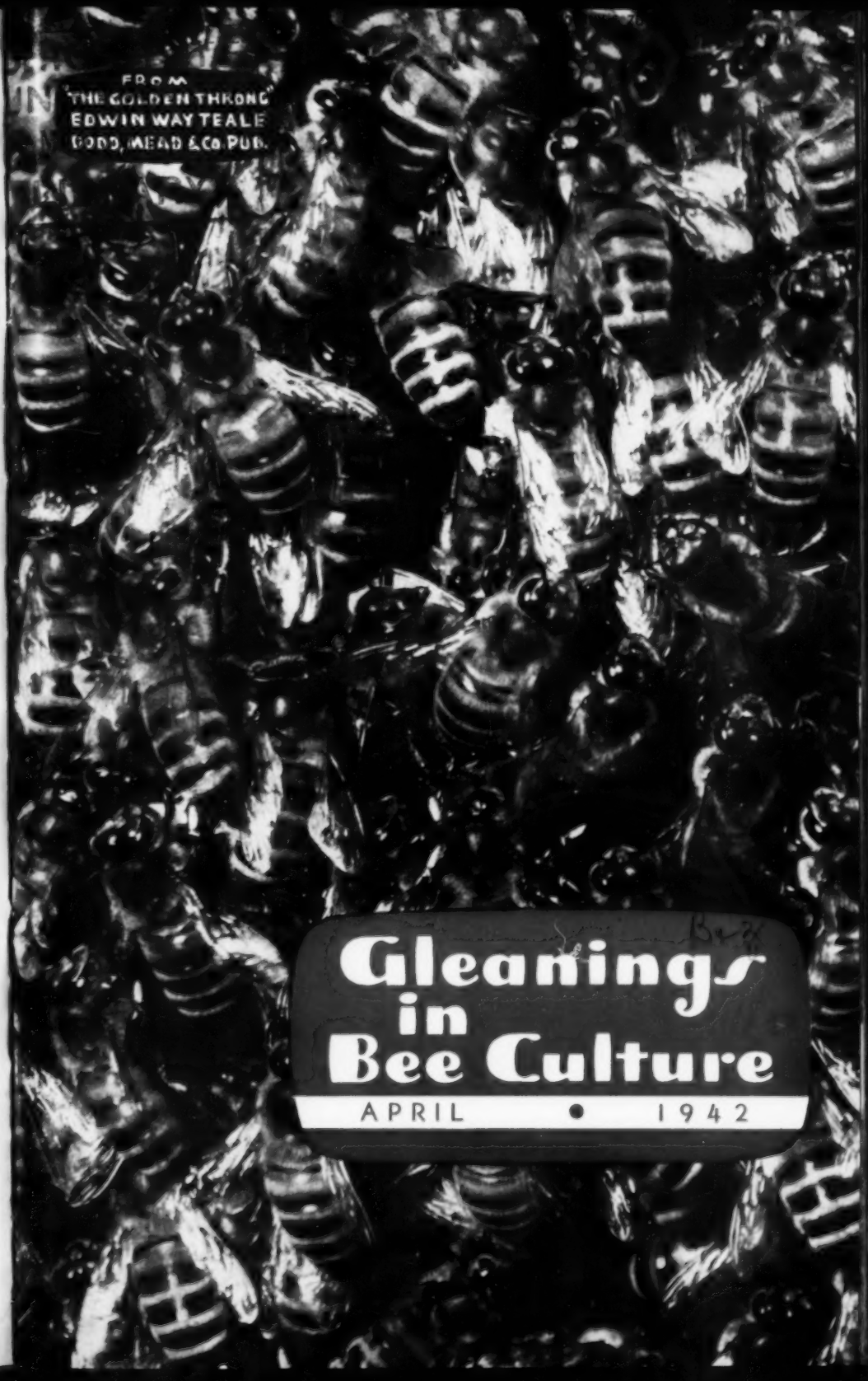
ORDER EARLY

Late deliveries may be impossible

THE A. I. ROOT COMPANY

MEDINA, OHIO

REPAIR YOUR EQUIPMENT NOW



Gleanings in Bee Culture

APRIL • 1942

A CHALLENGE
TO AMERICAN BEEKEEPERS

Keep the bees flying

• • •

No priorities on nectar

• • •

Make every colony produce

• • •

Honey relieves sugar shortage

• • •

Wax needed for defense

• • •

Keep the bees flying

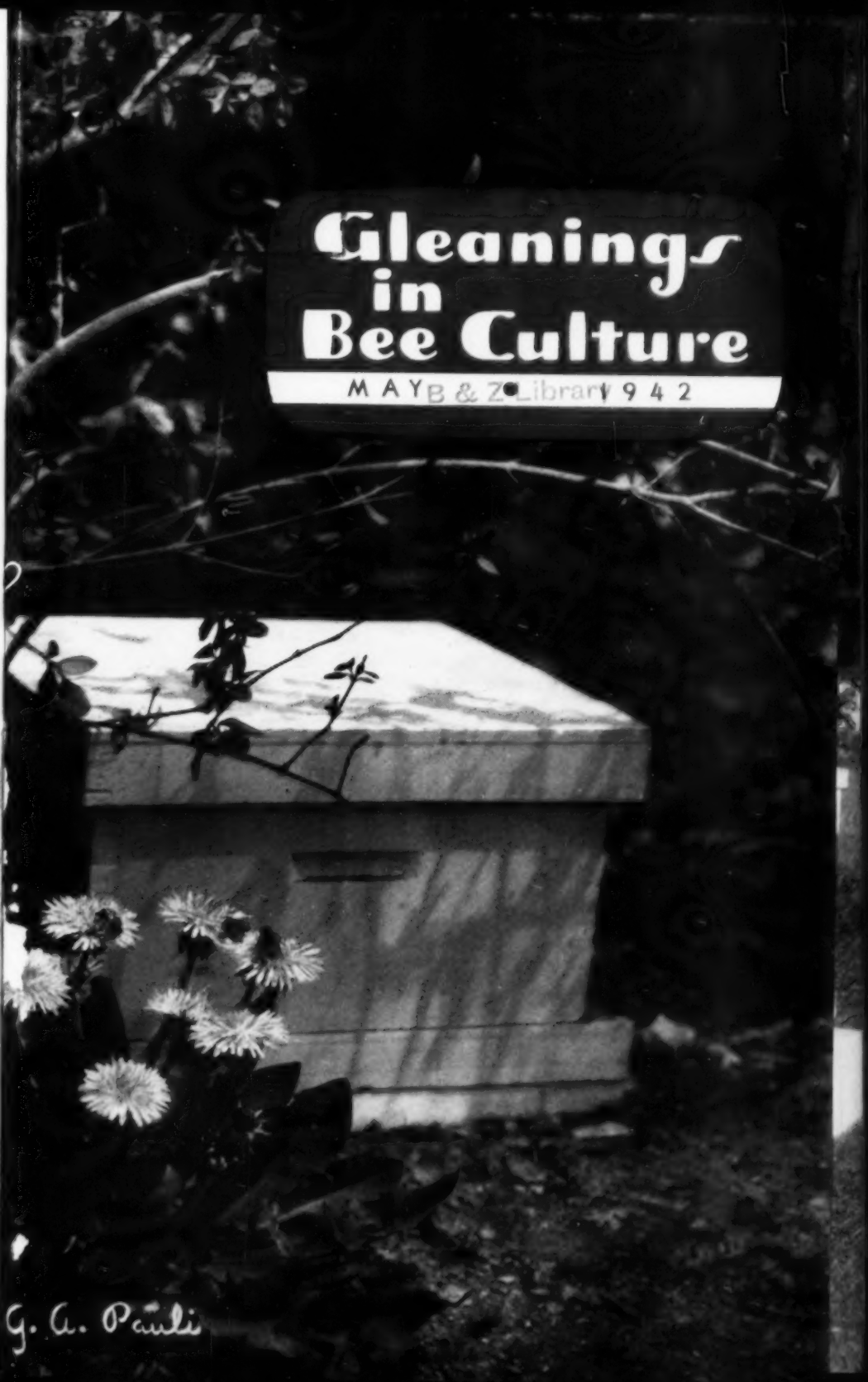
1942
Catalog
in
Mail

The Best Today
will be
The Best Tomorrow

Root
QUALITY
BEE SUPPLIES

THE A. I. ROOT COMPANY, MEDINA, OHIO

See your Root dealer

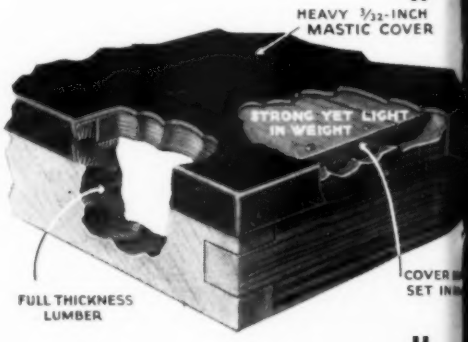

Gleanings
in
Bee Culture
MAY 1942
G. A. Paulis

SAVES

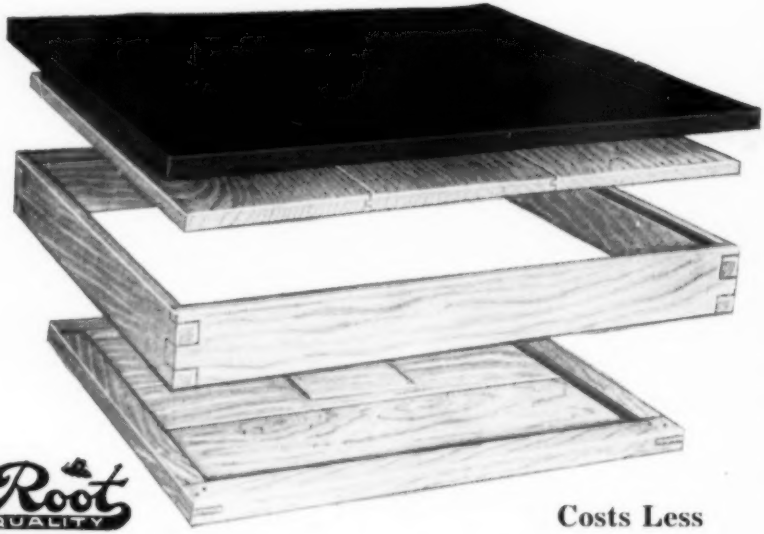
—Vital War Material
—Enables us to furnish hive bodies with NAILS for longer time.

New

MASTIC
HIVE COVER



Conditions make necessary the substitution of a new hive cover material in place of metal. MASTIC has the qualities of a superb material, hard, durable and will provide a fine waterproof covering. Can be replaced with metal (when available).



Root QUALITY BEE SUPPLIES

Costs Less

SAVE AND PROTECT FOR DEFENSE

THE A. I. ROOT COMPANY, MEDINA, OHIO

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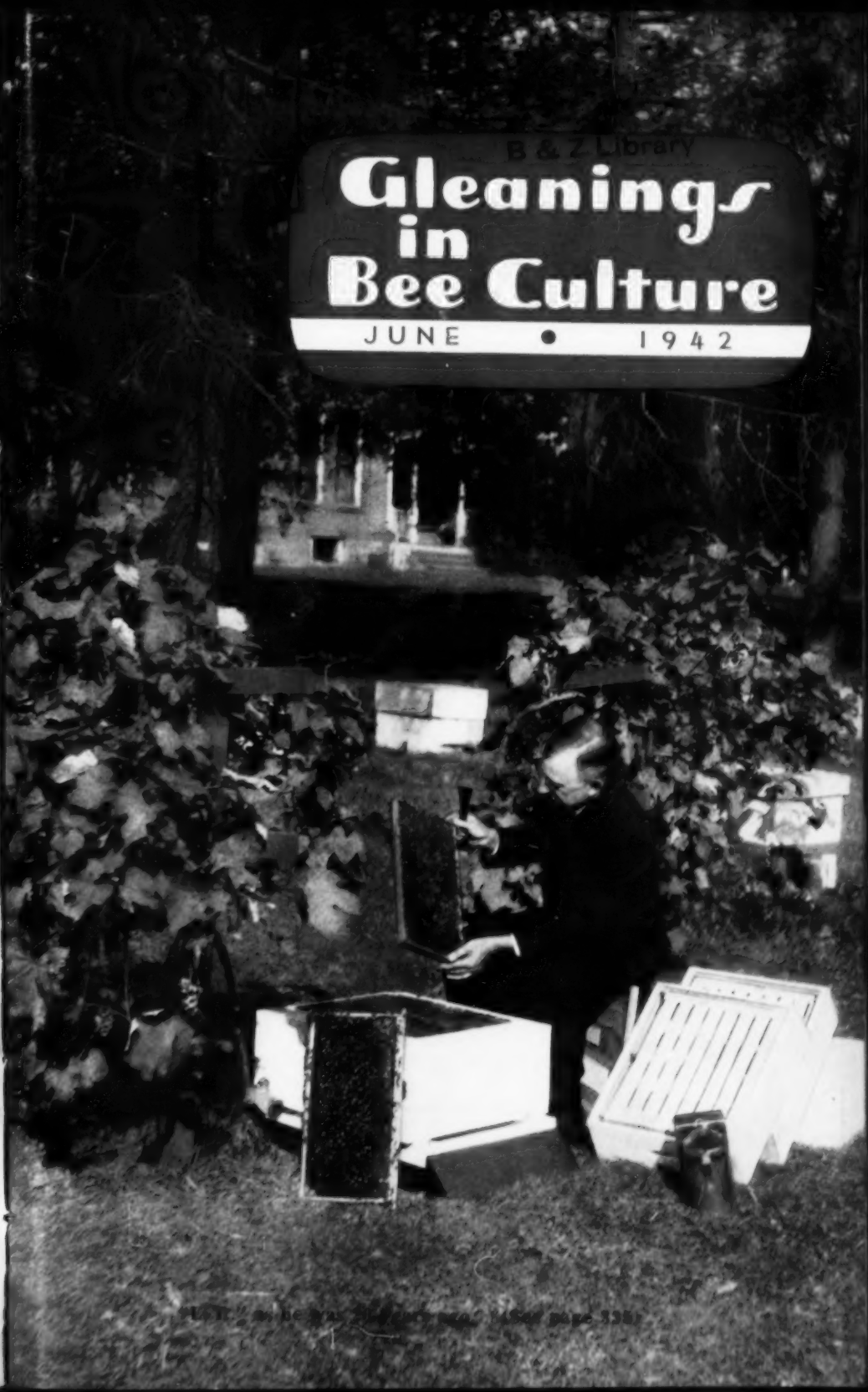
Gleanings in Bee Culture

JUNE • 1942



SWARMS ARE PRO-AXIS

Swarms usually issue because of crowded conditions in the hive.

Swarms may result from supersedure caused by failing queens.

Swarms reduce the honey-gathering force in strong colonies because the working force is divided and the housekeeping work doubled.

Swarms reduce the amount of surplus honey stored.

Swarms can be largely prevented by putting on supers in plenty of time.

HOW TO PREVENT SWARMING

"GLEANINGS IN BEE CULTURE" for May and June had two fine articles on this subject.

"STARTING RIGHT WITH BEES," the outstanding beginners' book, has 11 pages on this subject.

(See Combination Offer)

The A. I. Root Co., Medina, Ohio

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BEE SUPPLIES

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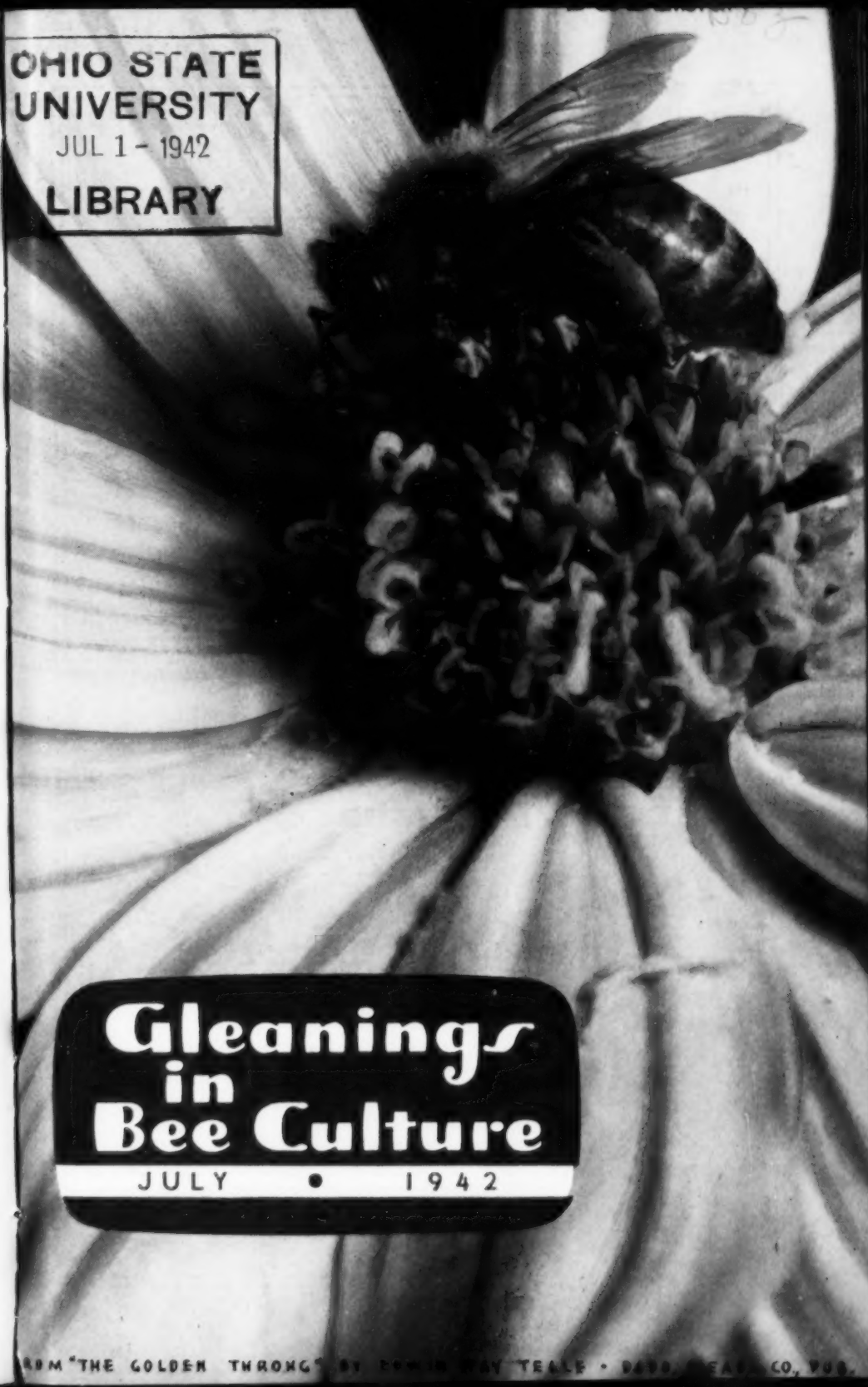

Gleanings in Bee Culture

JULY • 1942

FROM "THE GOLDEN THRONG" BY DOMIN WAY TEALE • DODD, MEAD & CO., PUB.

ROOT EXTRACTORS

GIVE SATISFACTORY SERVICE OVER
50 YEARS

"If I had stuck to Root goods since beginning with bees I would be $ $ better off."—F. C. Mann, Rockford, Mass.

IMPORTANT

Because of war conditions we cannot build all the Extractors that are needed.

We are glad that ROOT EXTRACTORS are BUILT TO GIVE LONG SERVICE.

• • •

ROOTS WILL ALWAYS BUILD the best Extractors possible.

REPAIR FOR THE DURATION

We have a Stock of Extractor Repair Parts for Root Extractors. Get years more of service out of Root Extractors by ordering repair parts NOW!

Root QUALITY BEE SUPPLIES

The A. I. ROOT Company
Medina, Ohio

Root QUALITY BEE SUPPLIES

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Gleanings in Bee Culture

AUGUST • 1942

HONEY CONTAINERS

COMB OR EXTRACTED

(ORDER LABELS NOW)

For Comb Honey

	$4\frac{1}{4}$x$1\frac{7}{8}$	$4\frac{1}{4}$x$1\frac{1}{2}$	4x5x$1\frac{3}{8}$
Window Cartons.	**7234**	**7233**	**7235**
1,000, **$10.85**; 500, **$5.50**; 100, **$1.25**			
Regular Cartons.	**7274**	**7273**	**7275**
1,000 **$7.95**; 500, **$4.00** 100, **95c**			

(Window Cartons for $4\frac{1}{4}$x$4\frac{3}{4}$x$1\frac{3}{8}$, 500 for $6.00).

Shipping weight per 100, 6 lbs.

For Printng Name on Carton add to prices above: 100, $1.50; 500, $2.25; 1000, $3.00. If by mail, add postage.

Do not order glass shipped by mail. Masterline and Skep*

Honey Jars

W.th white caps	No. in case	Price per case	Ship Wt. per case
8-oz. jars*	24	**$0.73**	**10 lbs.**
16-oz. jars*	24	**.88**	**15 lbs.**
32-oz. jars*	12	**.62**	**12 lbs.**
48-oz. jars	12	**.67**	**15 lbs.**

5-lb. Glass Honey Jar	**6**	**$ .45**	10 lbs.
5-lb. Glass Honey Jar	**½ gross**	**5.00**	120 lbs.
5-lb. Glass Honey Jar	**1 gross**	**9.95**	240 lbs.

New Tin Cans and Pails

2½-lb. Cans as long as supply lasts

2½-lb. can, 24 to carton, weight 16 lbs.	**$1.08 per carton**
2½-lb. can, 100 to carton, weight 35 lbs.	**$3.80 for 100**
5-lb. pail, 12 to carton, weight 13 lbs.	**.84 per carton**
5-lb. pail, 50 to carton, weight 29 lbs.	**2.90 per carton**
10-lb. pail, 6 to carton, weight 12 lbs.	**.66 per carton**
10-lb. pail, 50 to carton, weight 45 lbs.	**4.30 per carton**

(Labels ordered extra)

60-lb. Can Prices

		Ship. Wt.	
50 cans	For bulk pick-up at our warehouse	125 lbs.	29c ea.
25 cans		65 lbs.	30c ea.
10 cans		25 lbs.	31c ea.
1 can		3 lbs.	32c ea.

Packed for shipment in cartons of 1 doz.

	Ship Wt.	
48 cans	136 lbs.	31½c ea.
24 cans	68 lbs.	32c ea.
12 cans	34 lbs.	33c ea.
1 can Single ship. case	4 lbs.	40c ea.

Packed in wooden cases

1 Case of 2—60-lb. cans	$ 1.10
10 Cases of 2—60-lb. cans (5 gal., 2⅜" cap)	10.00

No. 509 Corrugated Cartons.

1000 Cor. Cartons	1500 lbs.	$75.00
100 Cor. Cartons	140 lbs.	8.80
50 Cor. Cartons	70 lbs.	4.75
10 Cor. Cartons	7 lbs.	1.00
1 Cor. Carton	1 lb.	.11

Write Medina for prices on carload lots. New cans in used cases while stock lasts, 15c per case less. Used cans in used cases when available 50c per case, 10 cases $4.00.

(Prices f. o. b. Medina only)

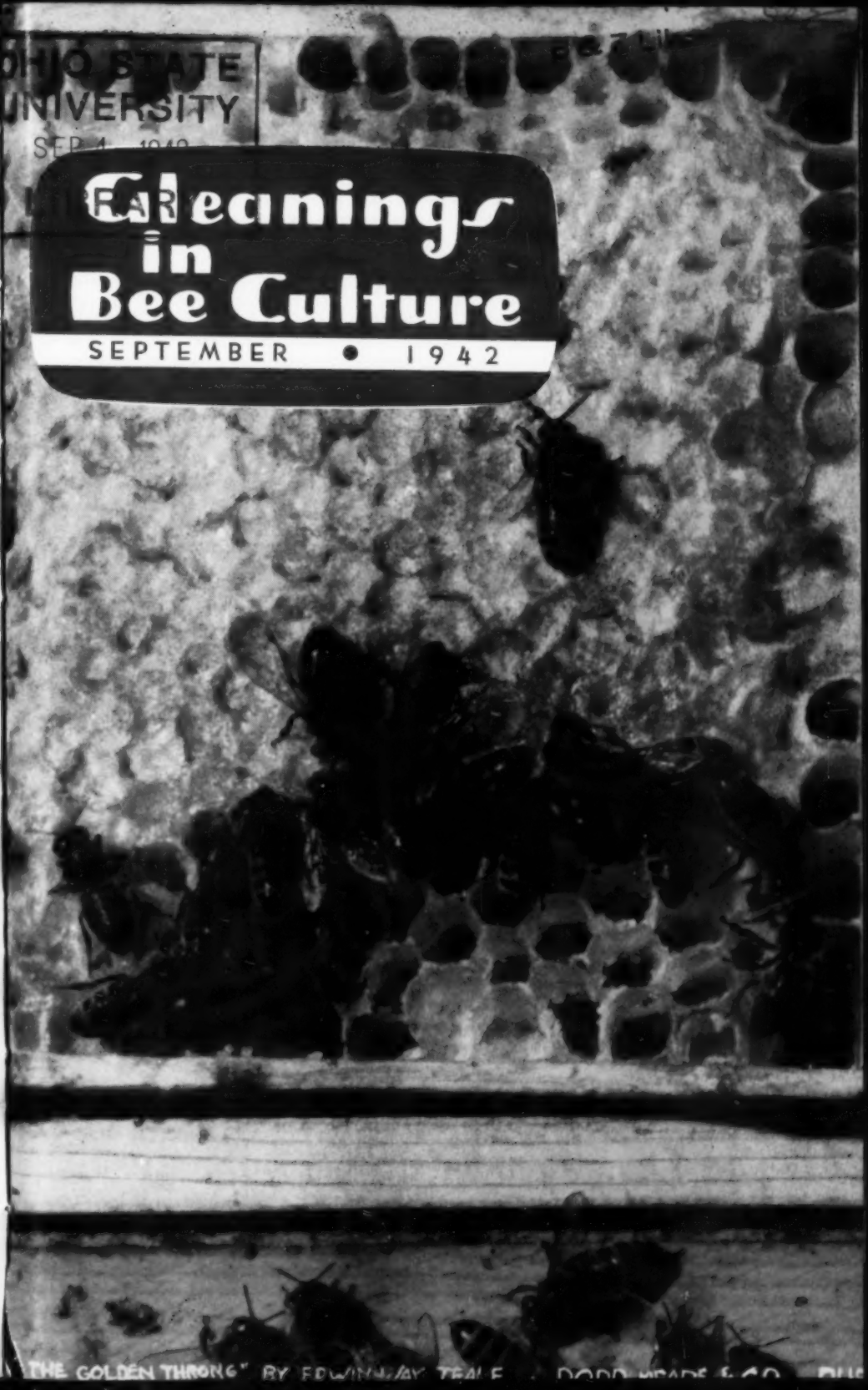
(All prices subject to change without notice)

THE A. I. ROOT COMPANY, Medina, O.

OHIO STATE UNIVERSITY
SEP 1 1942

Gleanings in Bee Culture

SEPTEMBER • 1942



"THE GOLDEN THRONG" BY EDWIN SAY TEALE . DODD MEADE & CO. PUB

QUALITY WORKMANSHIP *and* MATERIAL

IN

ROOT EXTRACTORS

MEANS MOST WHEN MACHINES MUST LAST LONGER TO HELP WIN THE WAR

• • •

3-FRAME EXTRACTOR

Only Small Extractor with perforated reel for drying cappings. Extracts All sizes of combs and unfinished sections.

Our quota which allowed the manufacture of metal bee supplies under the War Production Board limitation order L-26 for farm equipment prevents further manufacture of Root extractors and other metal goods during August, September and October.

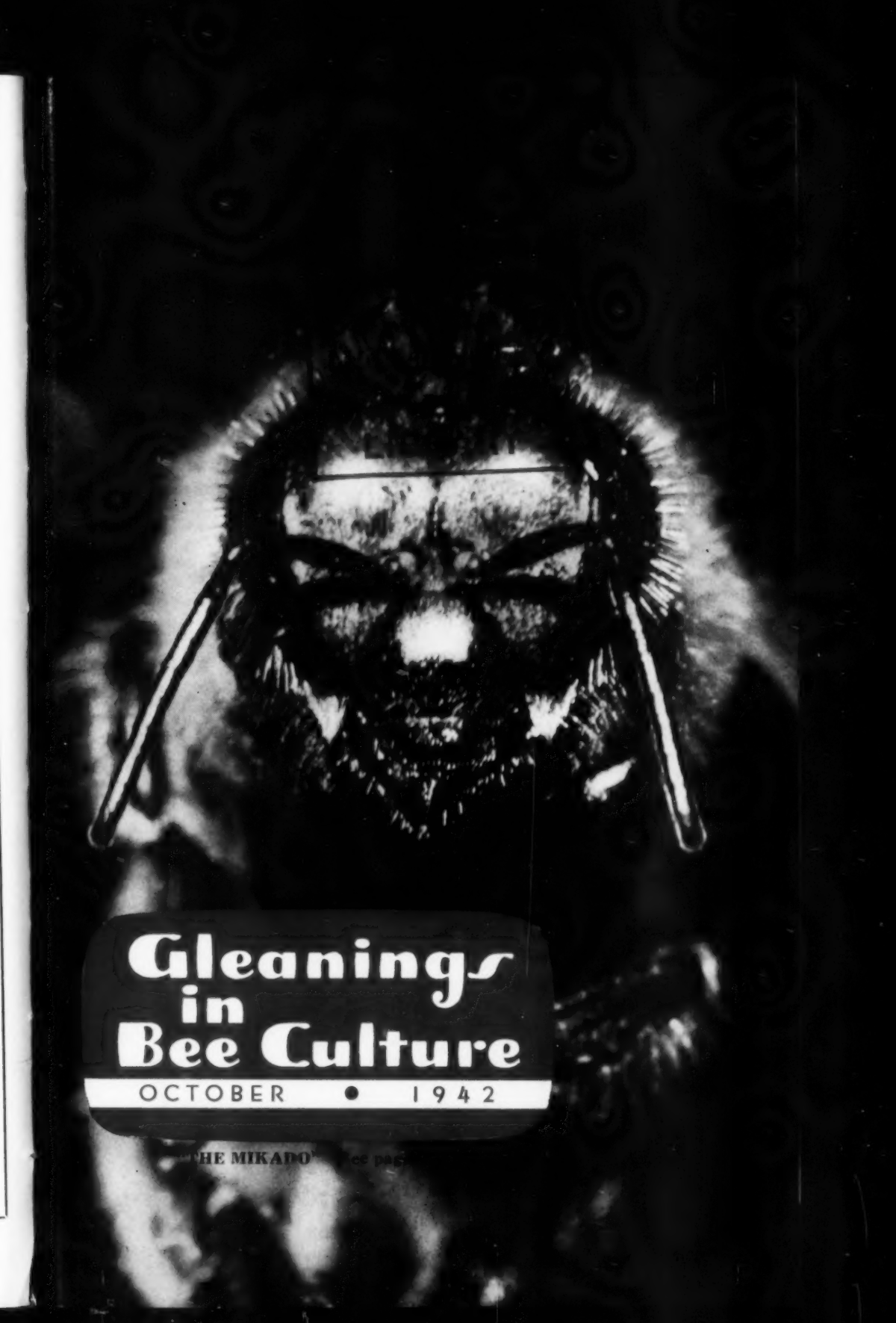
See Classified advertisements for used Root extractors.

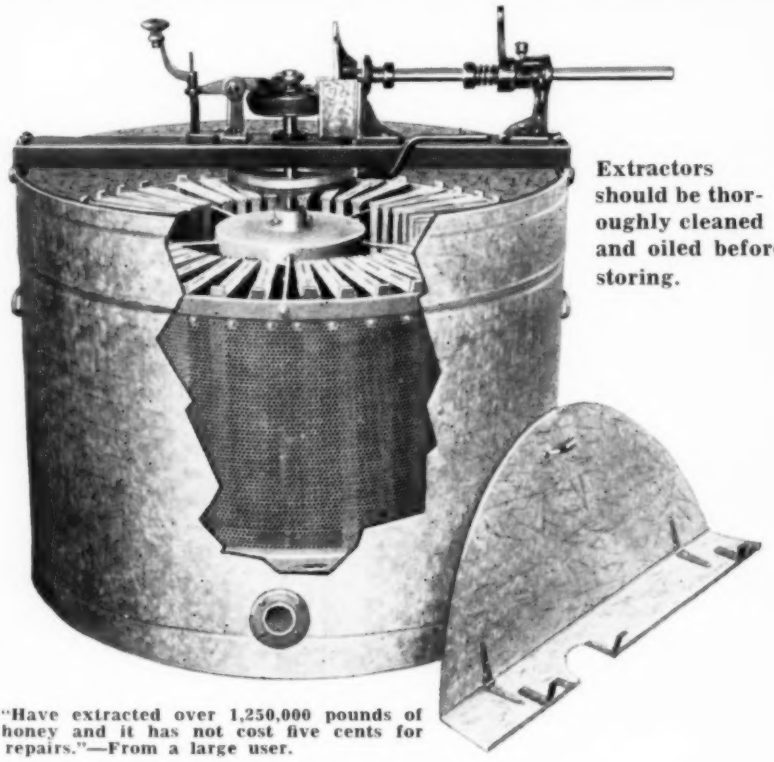
We are sorry to be unable to fill orders for extractors during this period, but we know you join with us in hoping this metal diverted to war machines will help to bring this war to a rapid close and victory.

Root QUALITY Bee Supplies

THE A. I. ROOT CO.
MEDINA, OHIO

Root QUALITY Bee Supplies


Gleanings
in
Bee Culture
OCTOBER • 1942
THE MIKADO



Extractors should be thoroughly cleaned and oiled before storing.

"Have extracted over 1,250,000 pounds of honey and it has not cost five cents for repairs."—From a large user.

NOT FOR SALE
FOR THIS YEAR

But our job is to see that you secure the greatest efficiency out of your present machine.

Root Extractors are built to give a lifetime of satisfactory service. Many have been **in use for over 50 years** without one cent for repairs.

Extractors purchased 50 years ago or less can be made to give added years of service. We have a fair stock of parts.

Let us quote you on repair parts.

Root QUALITY Bee Supplies

THE A. I. ROOT CO.
MEDINA, OHIO

Root QUALITY Bee Supplies

OHIO STATE UNIVERSITY

Bee Culture

November - 1942

3 HOURS

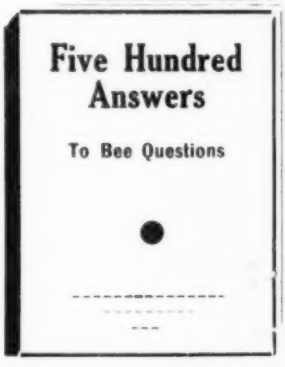
WITH THE BEST MINDS ON BEEKEEPING QUESTIONS

—Think of all the questions you would ask and what a wealth of information you would receive —questions that have been puzzling you for a long time —questions that govern the amount of honey you secure from your bees.

THAT IS NOT ALL

You would have three or four such sessions with the master minds.—And every question would be answered thoroughly and simply. Just think of asking **"500 questions on beekeeping".**

Well, the beekeepers have asked these questions and the answers are given in our new 96 page book entitled:—



"500 ANSWERS TO BEE QUESTIONS"

Contents Classified and Indexed

Only 50 cents
Postpaid.

With one year's subscription to Gleanings in Bee Culture, $1.25 U. S. and Canada.

Mail order to

The A. I. Root Company

Medina, Ohio